The OIL WEEKLY

10¢ A COPY

Exclusively Devoted To The Production and Transportation of Oil and Gas

Engineering News Statistics

April 11, 1930 Volume 57. No. 4

CO-CHAMPIONS

The performance records of the Hughes Rock Bit have been written in the permanent history of the development of the Rotary method of Drilling.

This leadership has never been questioned during the twenty years that have elapsed since the first Hughes Bit successfully and economically drilled hard formations.

The Hughes Core Bit is another outstanding contribution to the progress of the industry. It was designed to meet a real need—and today operators, contractors and drillers alike acclaim it "another champion."

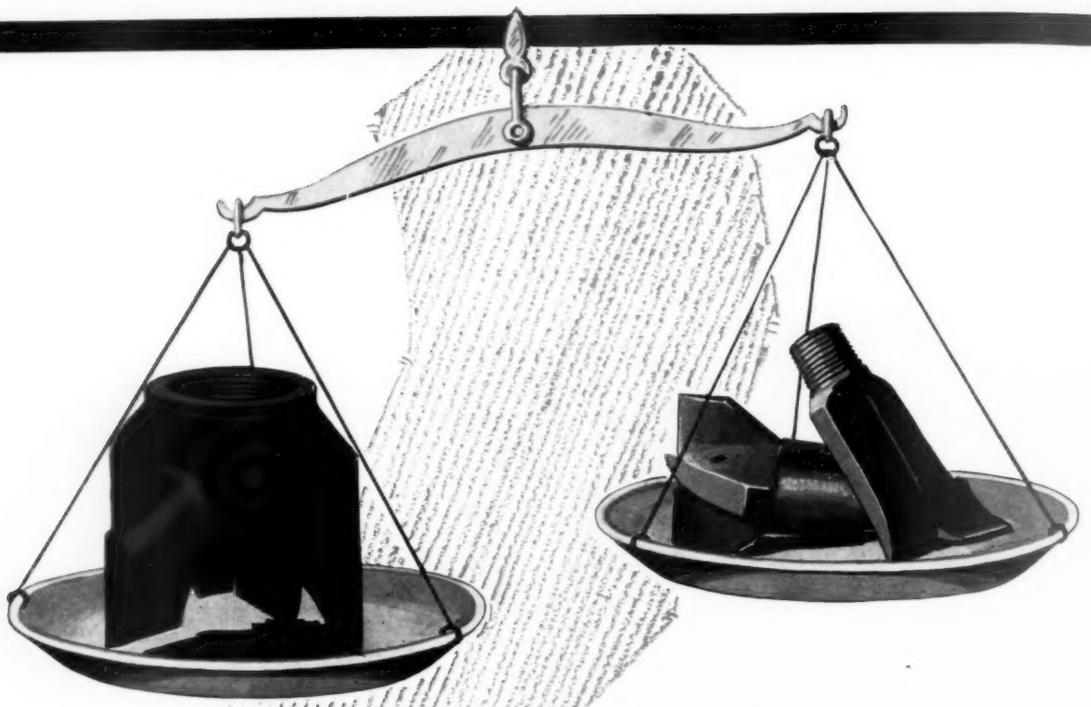
HUGHES TOOL CO.
Main Office and Plant
HOUSTON, TEXAS

Service Plants
Los Angeles Oklahoma City

Export Office
New York City

Hughes Rock Bits, Cones and Core Bits are stocked and sold by supply stores everywhere.

Write for complete catalogue on these important tools.



A BIT *that is* A BIT BETTER

H.C.SMITH *Type* "G" demountable DRILLING BIT

The H. C. Smith Type "G" Drilling Bit with roller reamer body. Drop-forged of special alloy steel of perfected design and a new method of diamond metal setting and hard surfacing. Reamers steady the bit and insure straight hole. Eliminates necessity of reaming down to get new bit on bottom. Can be run with either roller reamer body or plain body.

H. C. SMITH MANUFACTURING CO., INC.

Los Nietos, California

Branch Offices and Warehouses:

Bakersfield, Calif. Ventura, Calif.
Kettleman Hills, Calif. Taft, Calif.
Oklahoma City, Okla.

Cable Address: "Smithco, Whittier."

H.C.SMITH *Quality* TOOLS

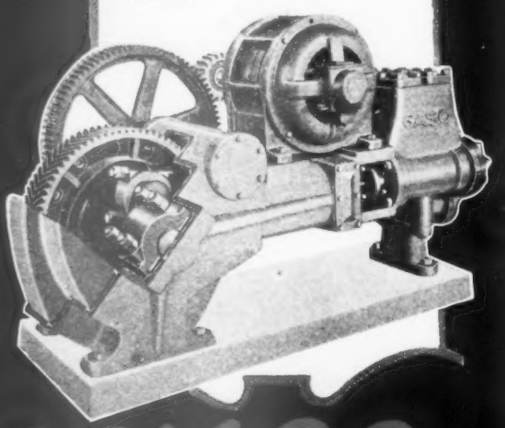
The OIL WEEKLY. Issued weekly by the Gulf Publishing Co., 3301 Buffalo Drive, Houston, Texas. Subscription price $1.00 per year 15 cents per copy. Entered as second-class mail matter December 23, 1916, at the post office at Houston, Texas, under act of March 3, 187

One step ahead!

Whenever engineering advancement has made possible the creation of an improved pump for oil industry use, that pump has been built by Gaso. For Gaso has never hesitated in taking any step which could secure more efficient and more enduring pumps for any service within the oil industry.

GASO PUMP & BURNER MFG. CO.
Tulsa, Okla.
Fort Worth, Texas
New York, N. Y.

The Gaso Fig. 710 Timken Bearing, Enclosed Power Pump can be arranged for top-mounted motor drive, as shown, or for belt or V-rope drive from motor or gas or gasoline engine. Interchangeable liners give capacities ranging from 54 bbls. per hour at 1400 lbs. pressure to 500 bbls. per hour at 300 lbs. working pressure.



GASO PUMPS
for every oil industry need

IDECO DERRICKS

THE same principles of structural design and manufacture as taught in every engineers' school and practiced by every structural engineer, are used in building "Ideco" equipment.

The superior strength of "Ideco" Derricks is attained with from 30 to 60% fewer parts than any derrick on the market. They represent a permanent investment that pays big dividends in speeding up production and minimizing upkeep costs.

Galvanized for protection against the elements—engineered for the most severe service conditions throughout the oil fields of the world.

The International Derrick

Columbus, Ohio **Houston,**

Plants:—Columbus, Delaware, Ohio; Torrance, California; Beaumont, Houston, Texas. *District Offices:*—Ft. Worth, Beaumont, Texas; Maracaibo, Venezuela. *Warehouses and Stocks:*—Columbus, Delaware, Ohio; Dorado, Wichita Heights, McPherson, Kansas; Houston, Beaumont, Big Spring, Odessa, Pyote, Pampa, Borger, Smackover, El Dorado, Arkansas; Bakersfield, Taft, Torrance, California.

Export Offices:—74 Trinity Place, New York City; Columbus, Ohio; Houston, Texas; Los Angeles, Calif.

IDECO BOYKIN ROTARIES

THE economy of "Ideco" rotary drilling equipment is not measured by the first cost even though that first cost *is* reasonable. It is rather found in satisfactory operation through years of gruelling oil field service without loss of production or the necessity of costly replacements and repairs.

Whether your interest be in the Ideco Boykin Rotaries, the Regular or Big Texan Draw Works, the Streamline Traveling or the Straight line Crown Blocks, you will find in this line of drilling equipment practical, field-studied machinery.

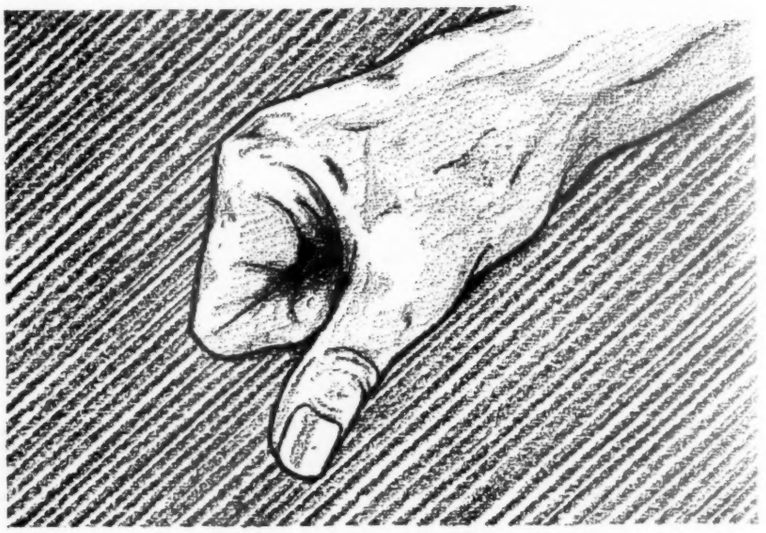
Service and warehousing in every prominent oil field.

& Equipment Company

Texas **Los Angeles, Cal.**

New York City, N. Y.; Pittsburgh, Pennsylvania; Wichita, Kansas; Tulsa, Oklahoma; Shreveport, Louisiana; Seminole, Tonkawa, Drumright, Okemah, Wewoka, Maud, Sasakwa, Allen, Oklahoma City, Oklahoma; El Mexia, Luling, Wichita Falls, Grand Saline, Seguin, Hebbronville, Texas; Lake Charles, Shreveport, Louisiana;

717



Thumbs down on RAPID ABRASION

SWIFT and sudden death was the fate of gladiators in the Roman Arena when the bloodthirsty crowd signalled "thumbs down." Today, in the oil fields, Blackor is the signal for death to rapid abrasion on drilling tools.

Blackor resists abrasion more than any other known material because it is one of the hardest materials known...the closest approach to diamond hardness...and because it protects the entire cutting surface of the tool...leaving no spots here and there exposed to abrasive attack. It makes an exceptional bond with the steel of the tool when melted on and unlike any other hard-facing or insert material...Blackor actually becomes a part of the steel. This anchors the Blackor to the steel and prevents chipping or breaking off. Blackor presents a solid cutting face that can be of any desired shape or hardness. The hardness is controlled by the number of layers, each layer being harder than the one before it.

Blackor speeds up drilling and cuts drilling costs by stopping frequent pulling of the string to change bits. It is adapted to every type of bit and needs no primary hard-facing material. It costs less to apply and requires less time. It is the proven solution to more hole at less cost. Adopt it as your standard hard-facing and watch results!

PROTECTED BY AMERICAN PATENT PROTECTION CORPORATION

Licensed under Patent Numbers:
1,613,942
1,424,536
359,925
30,021
16,347
15,311
2,580
1,069
Reissue No. 17,323,
Other Patents Pending

Blackor is granular in form and extremely easy to handle and apply. Your own welder, without previous experience, can melt it on at the rate of 100 square inches per hour. Applied with the carbon electric arc at a power cost of only 10 cents an hour.

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Los Angeles, California

New York Export Office: 39 Cortlandt Street

Tulsa, Oklahoma Office: 410 Thompson Bldg.

Houston, Texas Office: 616 Public National Bank Bldg.

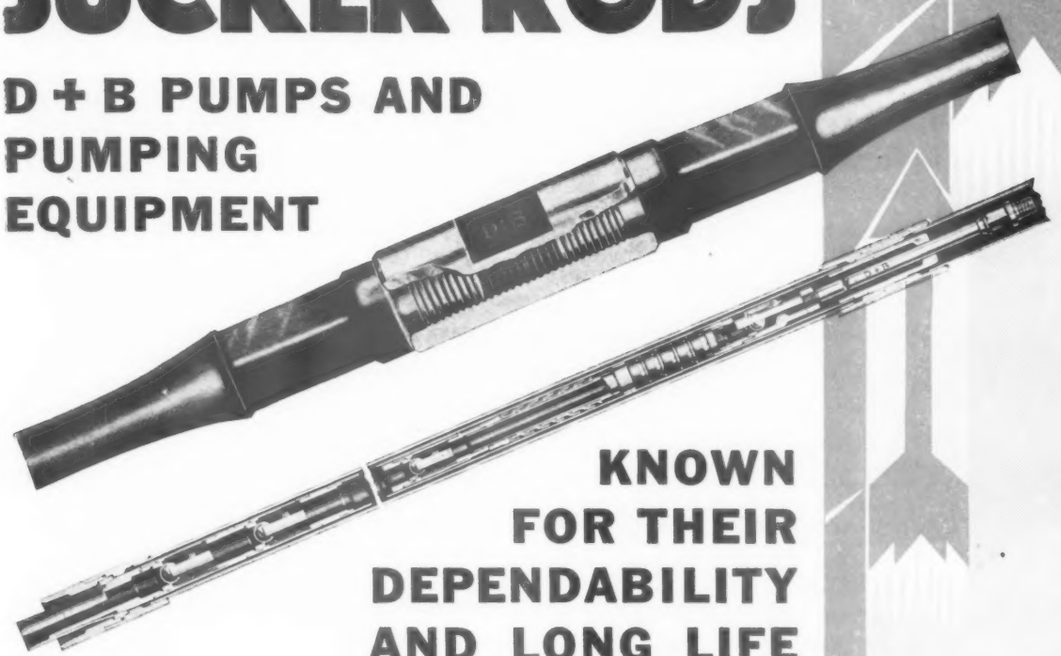
BLACKOR

The Super Abrasion-Resistant Facing

SPEED PRODUCTION AND LOWER COSTS BY USING

D+B HEATREAT SUCKER RODS

D + B PUMPS AND PUMPING EQUIPMENT



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"If Continental Sells It....There Is No Better"

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General Offices: ST. LOUIS

THE CONTINENTAL SUPPLY CO., LTD.
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Export Offices: CONTINENTAL EMSCO COMPANY, INC. 74 Trinity Place New York
London Offices: 316-17 Dashwood House, Old Broad St., E. C. 2

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CONTINENTAL

"For every joint on every line"

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Mail the Coupon for Victaulic Bulletin

For all sizes of steel, wrought iron, cast iron and spiral weld pipe—any pressure. Mail the coupon for detailed information.

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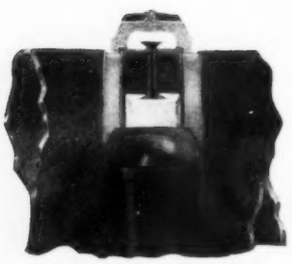

"For every joint on every line"

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FOR OIL, GAS, WATER, SEWAGE, COMPRESSED AIR, ETC.

For uses, installations, specifications and prices, fill in and mail this coupon.

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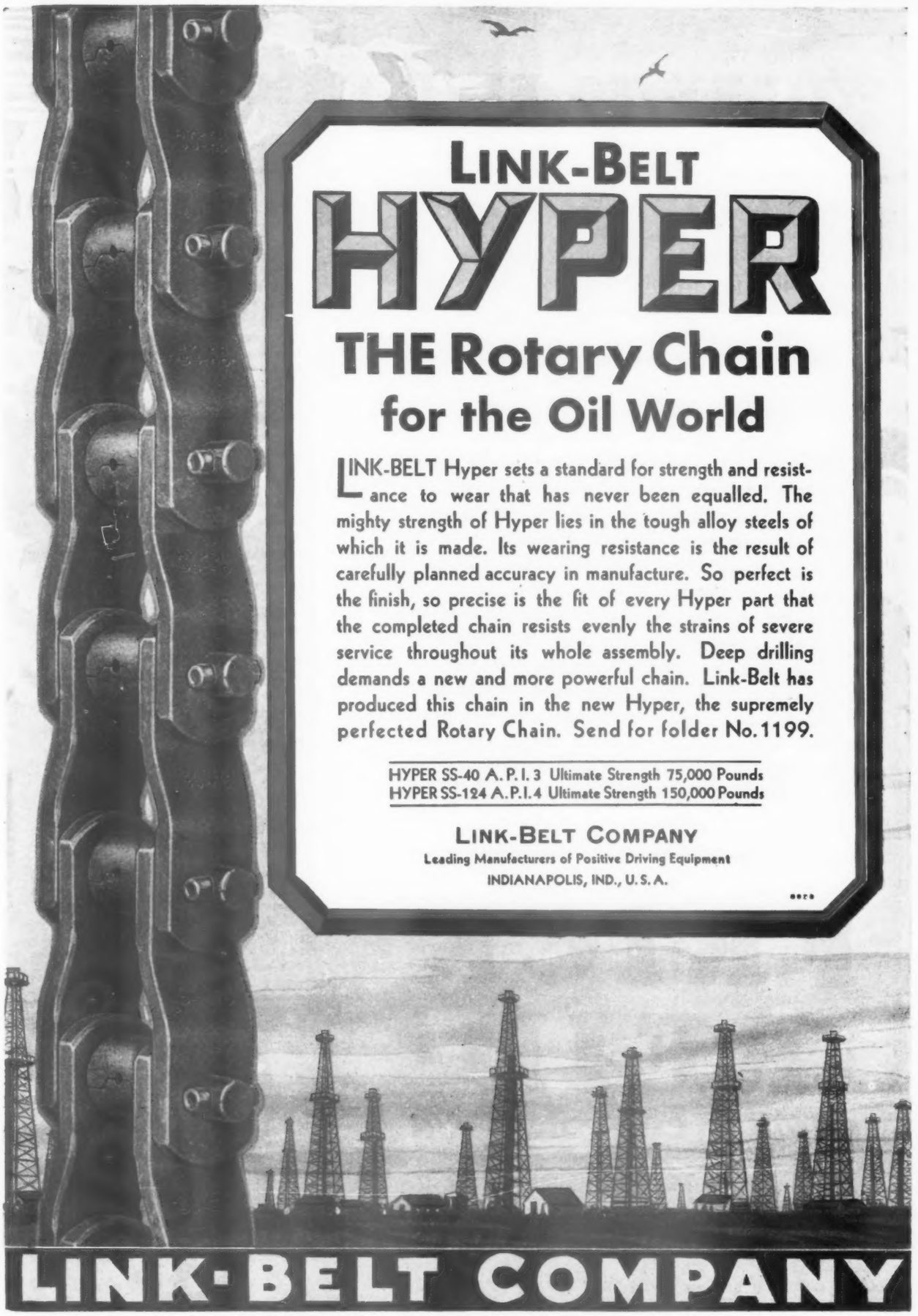

LINK-BELT
HYPER
THE Rotary Chain
for the Oil World

LINK-BELT Hyper sets a standard for strength and resistance to wear that has never been equalled. The mighty strength of Hyper lies in the tough alloy steels of which it is made. Its wearing resistance is the result of carefully planned accuracy in manufacture. So perfect is the finish, so precise is the fit of every Hyper part that the completed chain resists evenly the strains of severe service throughout its whole assembly. Deep drilling demands a new and more powerful chain. Link-Belt has produced this chain in the new Hyper, the supremely perfected Rotary Chain. Send for folder No. 1199.

HYPER SS-40 A. P. I. 3 Ultimate Strength 75,000 Pounds
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LINK-BELT COMPANY
Leading Manufacturers of Positive Driving Equipment
INDIANAPOLIS, IND., U. S. A.

LINK-BELT COMPANY

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IN the shopping zone in every city in America you will find two legitimate but distinctly different types of business enterprise. One sells merchandise at a price, using price as the chief sales inducement. The other sells quality merchandise, and price correctly takes second place. In either case the ratio of price to value is about the same.

You find the same two types of business among oil country supply and equipment dealers, and you will always find the Frick-Reid Store, in a figurative sense, on quality row. It deals in Quality Products Only—merchandise produced by the world's greatest manufacturers of oil country supplies and equipment to meet the unqualified approval of technically critical and practically experienced buyers. Price is not considered important, except that it must bear a fair ratio to quality, but since quality is the key to smooth running operations, Frick-Reid supplies and equipment become the most economical anywhere available.

AXELSON MANUFACTURING CO., LTD.
Sucker Rods, Pull Rods, Working Barrels, etc.

BEAUMONT IRON WORKS COMPANY
Dreadnaught Rotary Drilling and Pumping Equipment.

DONOVAN BOILER WORKS
Oil Country Boilers and Tanks

FRICK-REID SERVICE RUBBER BELTING
Our Own Specifications

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Tubular Goods, Seamless and Lapwelded

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WILLIAM POWELL COMPANY
Valves for the Oil Industry

J. P. RATIGAN
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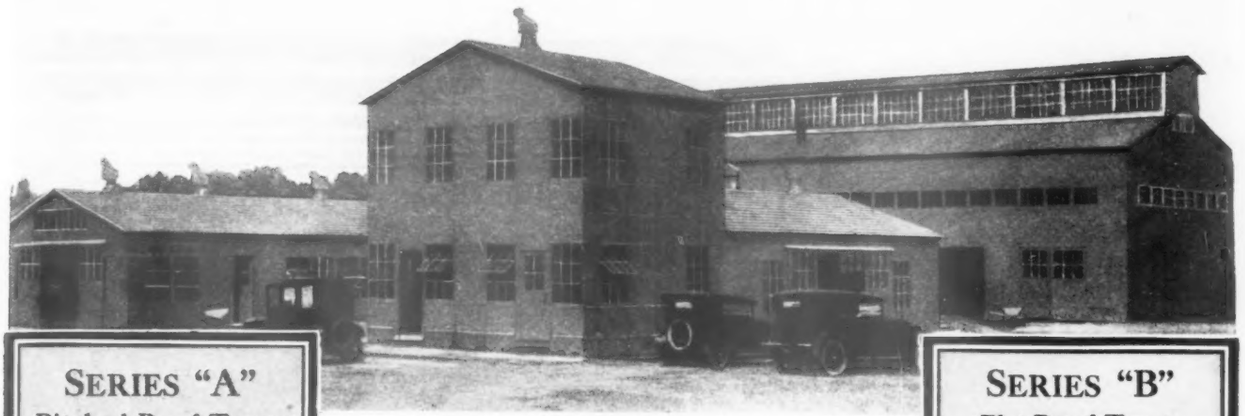
SUPPLY CORPORATION

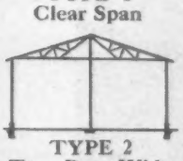
Pittsburgh, Pa. *Tulsa, Okla.*

FRICK REID

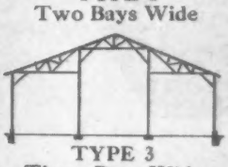


SERIES "A"
Pitched Roof Types

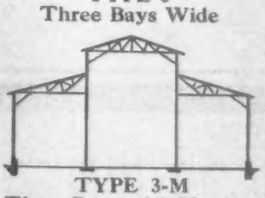
TYPE 1
Clear Span



TYPE 2
Two Bays Wide

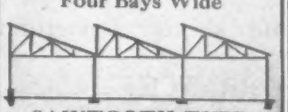


TYPE 3
Three Bays Wide



TYPE 3-M
Three Bays with Monitor

TYPE 4
Four Bays Wide



SAWTOOTH TYPE
Any Number of Bays Wide

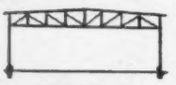
TRUSCON
STANDARDIZED
STEEL BUILDINGS
for THE OIL INDUSTRY

Specialized buildings of individual design for refining, production and marketing are furnished by Truscon from standardized stock units. Truscon Buildings are completely incombustible, having steel doors, steel windows and insulated Steeldeck roofs. They are promptly delivered, quickly erected and readily dismantled for re-erection in new locations. These low-priced, permanent buildings offer the maximum economy and value for your investment. Truscon Buildings are available in any size and all types of flat, pitched, monitor, lantern or sawtooth roofs. Write for suggestions and quotations on a building to exactly meet your requirements. Your inquiry does not obligate you in any way.

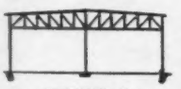
TRUSCON STEEL COMPANY
YOUNGSTOWN, OHIO
STEEL BUILDING DIVISION

Warehouses and Offices in Principal Cities
Truscon Steel Company of Canada, *Limited*, Walkerville, Ont.

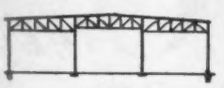
SERIES "B"
Flat Roof Types



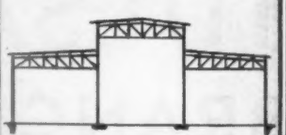
TYPE 1
Clear Span



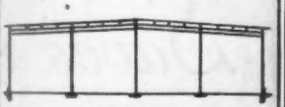
TYPE 2
Two Bays Wide



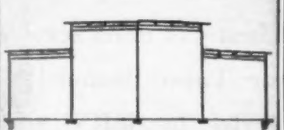
TYPE 3
Three Bays Wide



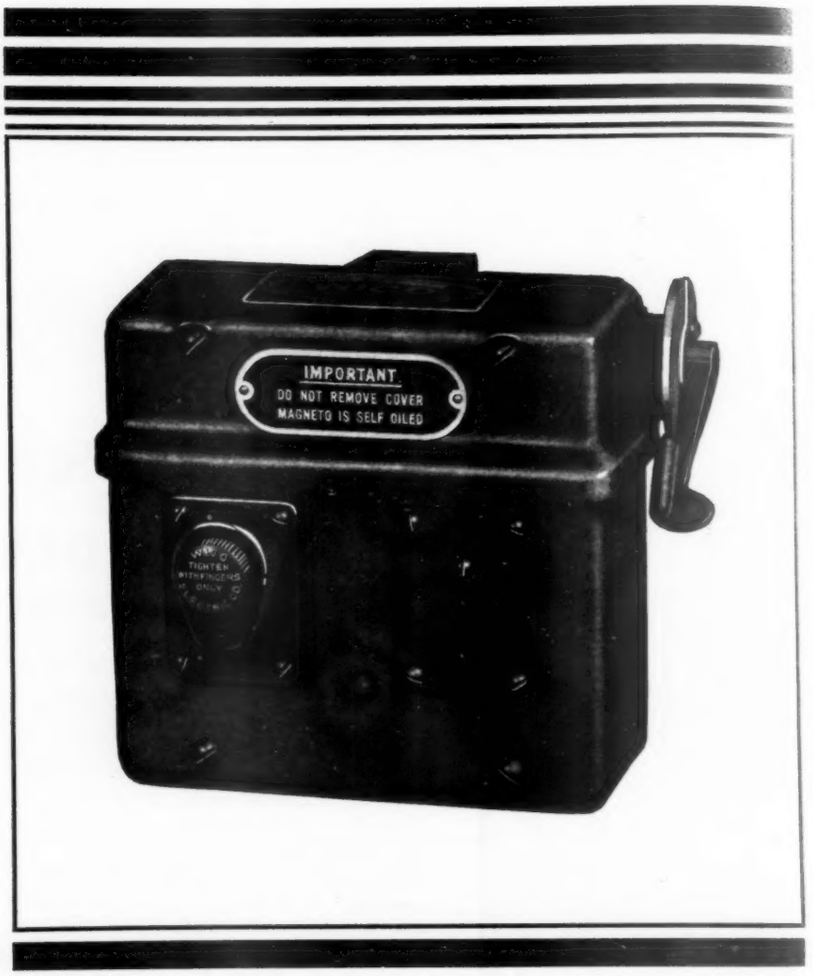
TYPE 3-M
Three Bays with Monitor



TYPE 4
Four Bays Wide



TYPE 4-M
Four Bays with Monitor



Our TULSA BRANCH

Saves you money and trouble!

When you need service write, wire, or phone our Tulsa Branch! It assures you repair service by WICO trained men who understand your problems and are always ready to serve you. It assures you genuine WICO parts for your WICO Magnetos.

Our Tulsa Branch was established for your protection. Make it *your* service department.

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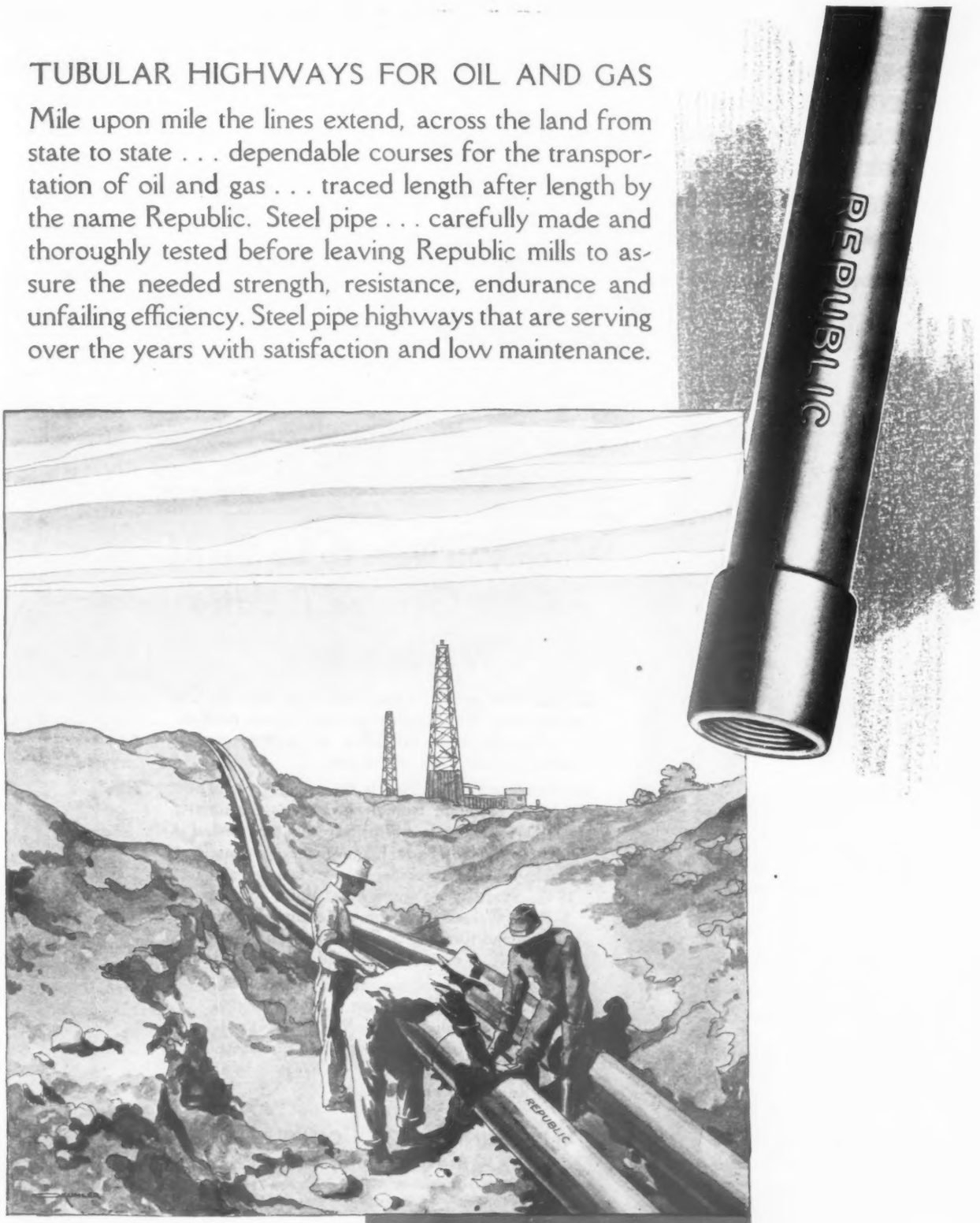
TULSA, OKLAHOMA

WICO ELECTRIC COMPANY

SPRINGFIELD, MASS.

TUBULAR HIGHWAYS FOR OIL AND GAS

Mile upon mile the lines extend, across the land from state to state . . . dependable courses for the transportation of oil and gas . . . traced length after length by the name Republic. Steel pipe . . . carefully made and thoroughly tested before leaving Republic mills to assure the needed strength, resistance, endurance and unfailing efficiency. Steel pipe highways that are serving over the years with satisfaction and low maintenance.



REPUBLIC
IRON & STEEL CO. YOUNGSTOWN O.
STEEL PIPE

Reading Iron Company 2½" upset Tubing, Cherry lease No. 2, St. Louis, Oklahoma. Used by Schaffer Oil & Refining Corporation. This tubing has been in use for eighteen months. This district has some sulphur gas but this String has not been affected, proving that wrought iron stands up better.

When you want to be SURE make it Genuine *Puddled* Wrought Iron!

Quality—not price—is the measuring stick for Oil Country pipe. Where pipe must *last*—where production depends upon reliability of tubing—order Reading 5-Point Pipe, every time.

For Reading 5-Point Pipe is the original, Genuine *Puddled* Wrought Iron. It gives you the time-tested resistance to corrosion—the time-tested ability to stand up under fatigue—that have made Reading 5-Point tubular goods famous since 1848. There is no guesswork about Reading 5-Point Galvanized Tubing, Reading 5-Point Casing and Reading 5-Point Line Pipe—you are SURE of their superior endurance.

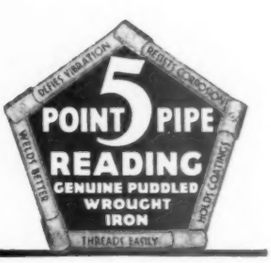
To protect yourself from needless pipe troubles and delay, insist on getting Genuine *Puddled* Wrought Iron. We prevent mistake and substitution by placing our name and indented spiral mark on every length of Reading 5-Point Pipe.

As an added improvement, all Reading Galvanized Couplings for Reading 5-Point Tubing are now furnished with galvanized threads.

Reading pipe distributed by:
Frick-Reid Supply Corp.
Bradford Supply Co.
Republic Supply Co.
Superior Tube Co.
Our own stocks at Houston, Texas

READING IRON COMPANY
Reading, Pennsylvania

Atlanta . Baltimore . Cleveland . New York
Philadelphia . Boston . Cincinnati . St. Louis
Chicago . New Orleans . Buffalo . Houston
Tulsa . Seattle . San Francisco . Detroit
Pittsburgh . Los Angeles . Kansas City

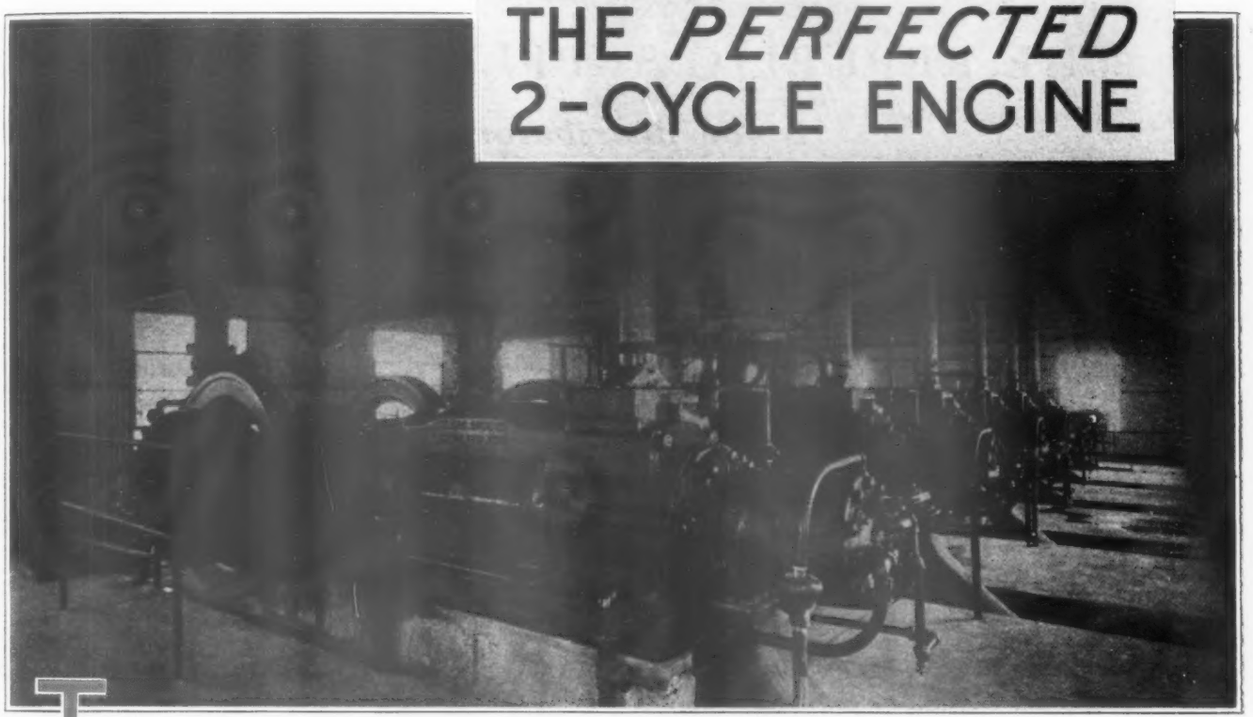


GENUINE PUDDLED WROUGHT IRON READING PIPE

DIAMETERS RANGING FROM ⅛ TO 20 INCHES

Science and Invention Have Never Found a Satisfactory Substitute for Genuine Puddled Wrought Iron

CLARK PIONEERING HAS DEVELOPED THE *PERFECTED* 2-CYCLE ENGINE



THE FIRST successful Double-Acting Engine is the CLARK

CLARK first made available the obvious advantages of double action, in an engine without a weakness, by eliminating the use of piston rods in the hot combustion cylinder space. Immediate approval by oil industry engineers, repeat orders from operators after thorough trial, and imitation by other manufacturers, attest CLARK leadership in the double-acting 2-cycle gas engine field.

Above are shown CLARK 200 H. P. Double-Acting "Super 2s" in St. Louis, Oklahoma, plant of Crosbie and Gillespie.

Compressors and Gas Engines

CLARK BROS. COMPANY, Olean, N. Y.

Export Office: 150 Broadway, New York City. Mid-Continent Sales Offices: Tulsa and Fort Worth.
Warehouses: Tulsa, Oklahoma; McCamey and Sweetwater, Texas; Artesia, New Mexico.
California: Smith, Booth, Usher Company, 228 S. Central Ave., Los Angeles.

CLARK

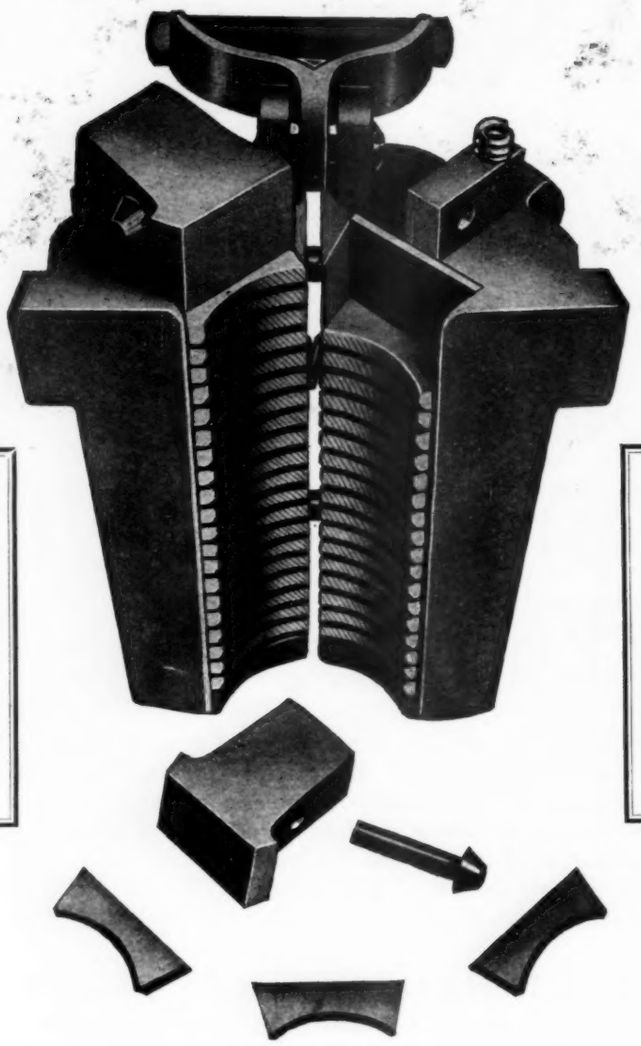
ANNOUNCEMENT

THE REPUBLIC SUPPLY COMPANY

is now distributor for

MISSION SLIPS

Write for information now.



In OKLAHOMA
KANSAS
LOUISIANA
ARKANSAS
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and
TEXAS

1. Will not cut, crush, or bottleneck your pipe.
2. Can change teeth on the derrick floor.
3. Will not hang in spider.
4. Economy in upkeep.

PROVEN

The advantages of the Mission Slips have been conclusively proven in many fields by the major companies.

PAY FOR THEMSELVES BY THE PIPE AND LABOR THEY SAVE

The reason so many companies are standardizing 100 per cent on MISSION SLIPS is that they have found out how quickly these slips pay for themselves by the pipe and labor they save. *Write for information NOW*

Republic Supply Company

OIL AND GAS WELL SUPPLIES

Cable and Rotary Tools

GENERAL OFFICES: HOUSTON, TEXAS

VALVES & FITTINGS *with a* PROVED *record of strength and dependability*

Carried in Stock and Sold by

NORVELL-WILDER COMPANY
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OIL WELL SUPPLY COMPANY
Branch Stores in all Oil Fields

Export Distributors

OIL WELL SUPPLY COMPANY
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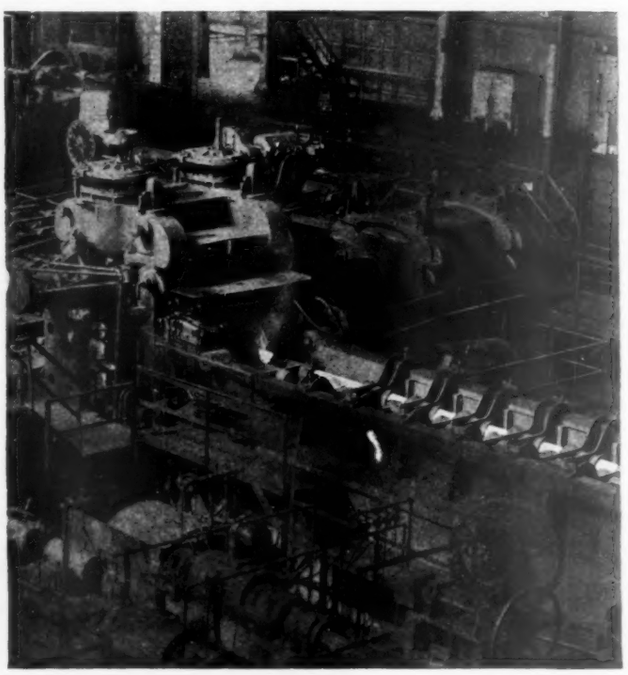
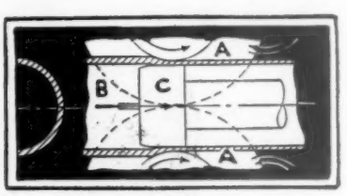
Produced under Finest Control in the Heaviest Plug Mills in Existence

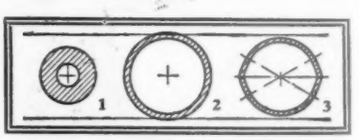


The picture shows one of the powerful J & L plug mills, the largest and heaviest in existence.

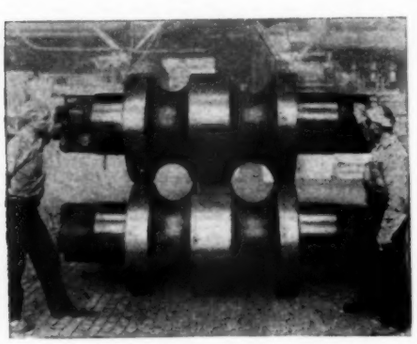
FACILITIES of J & L for making Seamless Casing, Tubing and Drill Pipe of highest quality are unsurpassed. For instance, J & L employs the heaviest plug mills in existence for producing all sizes of seamless from 2⅜" O.D. to 13⅜" O.D. By using this extra heavy equipment J & L has reduced detrimental vibration to a minimum, and has obtained as nearly perfect control as possible over an operation highly important to making seamless of superior quality. In the plug mill a denser steel structure and the correct weight per foot are obtained as the tube is rolled to approximately the exact wall thickness. The more thoroughly the plug mill does its work the greater will be the endurance and dependability of the finished pipe.



Sketch of plug mill operation in seamless manufacture. "A" are the rolls, "B" is the tube, and "C" is the plug over which the tube is rolled.



Development of cross-section of J & L Seamless Pipe: 1. After first piercing; 2. After second piercing; 3. After plug mill rolling.



The picture at the left indicates the giant size of the rolls employed in the J & L Seamless Pipe plug mills.

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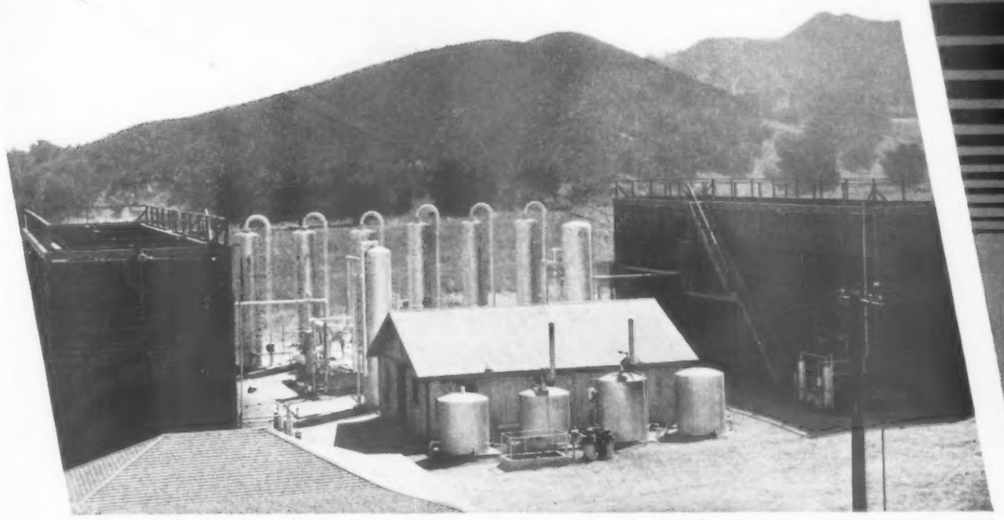
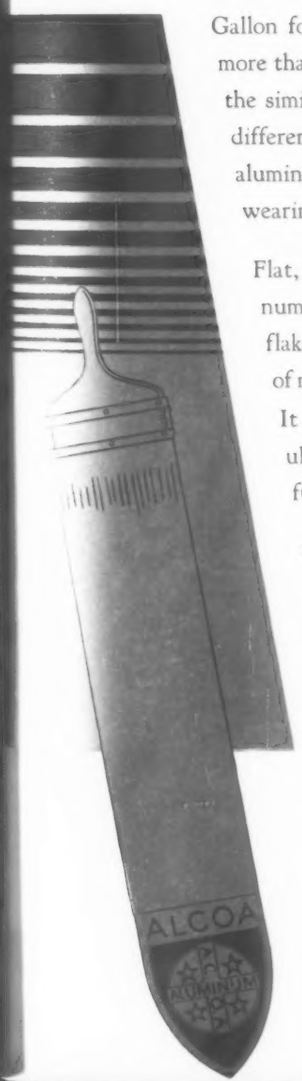


Its pigment is different—that's why it lasts longer—gives better protection



Gallon for gallon, aluminum paint costs no more than other high grade paints. But there the similarity ends. The pigment is entirely different, and it is the pigment that gives aluminum paint its unusual protective and wearing qualities.

Flat, thin, highly polished flakes of pure aluminum form the pigment of this paint. These flakes overlap and build up into a tough coat of metal protection when the paint is applied. It bars moisture. It resists the action of ultra-violet rays and even hydrogen sulphide fumes.

Oil tanks, tank cars, in fact any exposed metal work, when painted with aluminum paint, is exceptionally well safeguarded from the weather. And as this paint lasts much longer than the ordinary kind, repainting is necessary at less frequent intervals.

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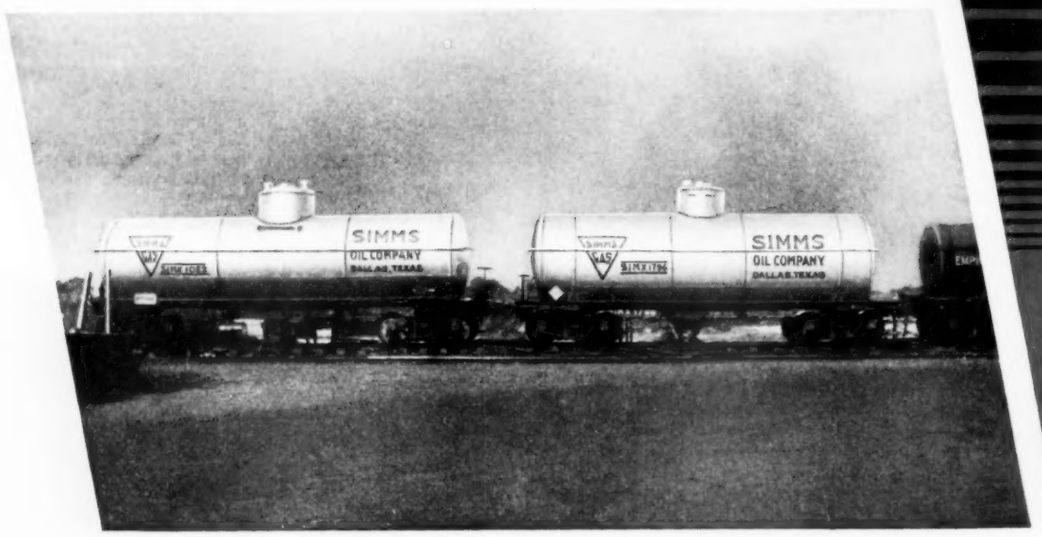

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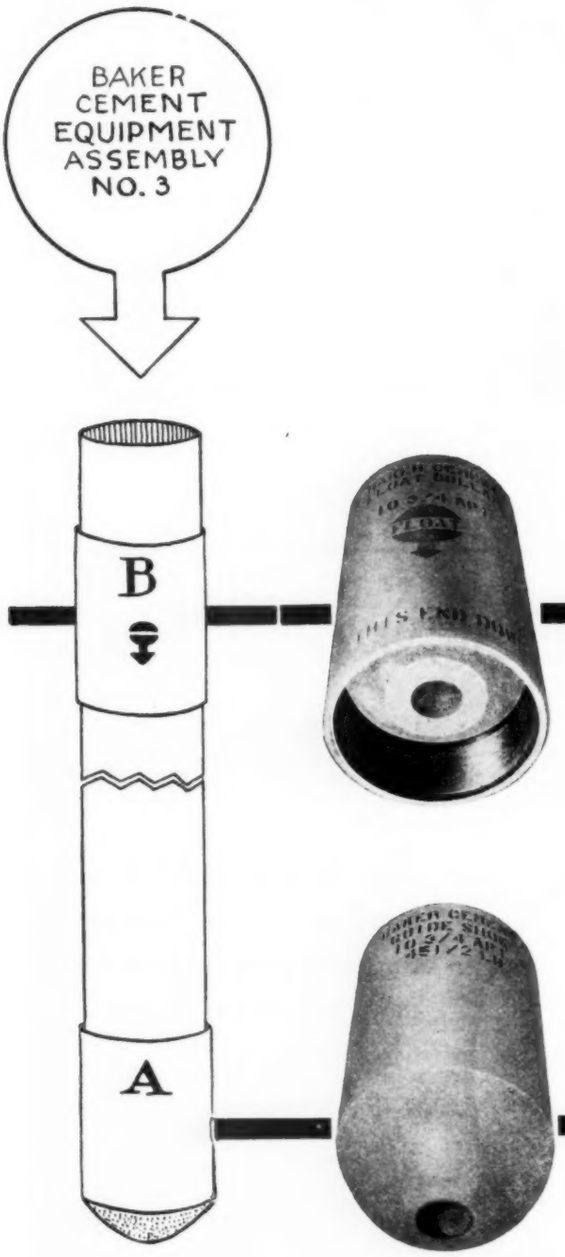

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A Gulf Publishing Company Publication

The OIL WEEKLY

Member Audit Bureau of Circulations

VOLUME 57, No. 4

APRIL 11, 1930

Edited Weekly at Houston, Texas

SPECIALIZED OIL JOURNALS
The OIL WEEKLY
The REFINER
The PETROLEUM MAP
REFINING PRODUCING MARKETING
GULF PUBLISHING COMPANY

SPENCER W. ROBINSON, EDITOR

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Published Weekly

by

GULF PUBLISHING COMPANY

OFFICE OF PUBLICATION
3301 Buffalo Drive, Houston, Texas

R. L. DUDLEY, *President*
A. L. BURNS, *Gen'l Manager*
SPENCER W. ROBINSON, *Editorial Director*
J. KENT RIDLEY, *Managing Editor*

NEW YORK: Room 613, 250 Park Avenue, Dick Swinsky, Manager.

PITTSBURGH: 703 Park Bldg., W. W. Pigue, Manager.

CHICAGO: 624 So. Michigan Ave., O. R. Waller, Manager.

LOS ANGELES: 416-417 Haas Bldg., W. E. Green, Manager.

TULSA: 913-916 Hunt Bldg., J. F. Carter, Jr., Manager.

FORT WORTH: 203 W. T. Waggoner Bldg., H. H. King, Manager.

Issued Friday of each week. Single copies 15 cents. Subscription price: Domestic $1.00 a year, Foreign $1.00 a year. Subscription restricted to those engaged in the producing and pipe line branches of the oil business or the manufacture and distribution of oil field supplies. Advertising rates on application.

The Associated Press new items, taken from Houston (Texas) Chronicle of March 29 and April 1st.

Oil-Drenched Workers Fight To Control Huge Wild Well

By Associated Press.

Oklahoma City, March 29.—Rumbling defiance at scores of oil field workers, who all night sought to curb its spectacular flow of oil and gas, a gusher continued to "run wild" in the Oklahoma City field today, spouting thousands of gallons of oil high in the air.

A companion well, which had been running wild since Tuesday, was shut in yesterday.

The well, the No. 1 Mary Sudick of the Indian Territory Illuminating Oil and the Foster Petroleum Company, blew in Wednesday as a mammoth gusser, with a flow estimated at 200,000,000 cubic feet daily, and with scarcely enough oil to color the gas.

Gradually the oil flow increased, until the well "drilled itself in" with what oil men estimated at from 1000 to 2000 barrels of oil an hour, one of the largest wells of its kind in the world.

Workmen in oil drenched slickers went about the task of installing a master gate on the well carefully, for the work was extremely hazardous. Tremendous pressure, estimated by engineers at 3000 pounds to the square inch, must be overcome without the least spark or heat from friction to evade the danger of firing the well.

While it was impossible to gauge the raging well, oil men did not hesitate to pronounce the largest producer of "sweet" oil in the world. Sulphur oil wells in Texas and Mexico have surpassed its production with "sour" oil, but the No. 1 Thomas Fussell, property of the same companies and in the same field, with a record flow of 42,586 barrels for one day, previously had been conceded the world's largest "sweet" oil producer.

Workmen were reluctant to say when the gusher could be shut, although some were of the opinion that it might run wild for several days yet. Vast lakes of oil, held in by hastily erected dikes, surround the well, and it is probable that most of this will be saved.

Oil spray, flung up from the well, floated as far as Moore, in Cleveland County, but as a high wind blew down from the north, evidences of oil were for as far south as Norman.

WILD GUSHER STILL DEFIES ARMY OF MEN

Drilling Operations Curtailed as Fire Menace Grows; Oil Splatters the Countryside.

By Associated Press.

Oklahoma City, April 1.—Defying many puny efforts to restrict its towering strength, the Mary Sudik No. 1, wild oil gusher of the Oklahoma City field, today hurled a constant menace of thousands of barrels of oil hundreds of feet into the air.

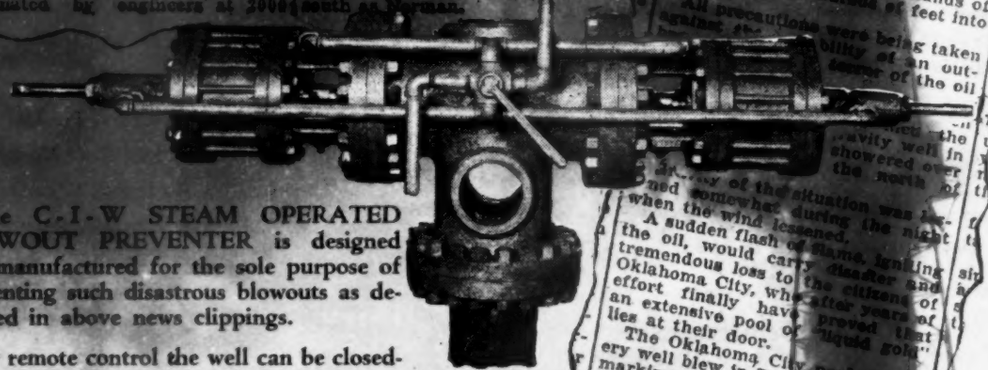
All precautions were being taken against the possibility of an outbreak of fire, danger of the oil showered over the north

A sudden flash of flame, igniting the oil, would carry disaster and tremendous loss to the citizens of Oklahoma City, who after years of effort finally have proved that an extensive pool of "liquid gold" lies at their door.

The Oklahoma City pool discovery well blew in December 4, 1928, marking the opening of what is classed the largest pool in the Oklahoma area. The huge natural reservoir was tapped at a depth of 6400 feet, after numerous tests drilled to usual and considerably lesser depths met with failure.

As a result of yesterday's high wind, housewives in South Oklahoma City were warned to close the windows of their homes.

Fire fighting equipment was dotted in strategic locations along the edge of the city and through the oil fields.



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By remote control the well can be closed-in instantly and safely. The steel around steel grip of the rams will positively keep the drill stem in the hole—and instantaneous closing catches it before it has a chance to blow out. Hydraulic rubber packing on rams assures a perfectly gas-tight seal.

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Volume 57, No. 4 *April 11, 1930*

The OIL WEEKLY

A GULF PUBLISHING COMPANY BUPLICATION

Economic Situation in Texas Demands Lower Production

By H. J. STRUTH
Staff Economist

THE question of whether the industry should set up this year's crude production quotas on a yearly or monthly daily average basis is answered by Mr. Struth with his conclusion that the quarterly basis offers the most reliable barometer by which to measure the true status of current production. To use any other method is misleading, as his facts show, and presents a problem of how to dispose of previous excesses. The quarterly quota provides a means of more accurate determination of the week-to-week situation, in conformity with seasonal requirements, as well as a means of correcting succeeding quarterly quotas by previous excesses. It is this method of gauging current production that focuses attention to the necessity for further curtailment in Texas.

MATERIAL improvement in the statistical position of the crude situation has led to considerable speculation over the prospect of higher crude prices. Efforts of California operators to bring production down to a normal level have been rewarded by an advance in posted prices. The success of proration in Oklahoma points, unfailingly, to an early increase in posted prices. In fact, the prospect of higher crude prices in Oklahoma has led operators in Texas to believe that an early increase can be expected to be announced throughout the Mid-Continent area. Analysis of the facts at hand, however, shows that while an increase in posted prices is apparently justified in Oklahoma, the situation in Texas is still far from satisfactory and does not offer the relatively necessary degree of economic stability to justify a higher crude market at this time. As a matter of fact, it appears that Texas operators will be obliged to inaugurate a far more intensive curtailment program in order to justify a higher crude market.

Success of Curtailment

Curtailment of excessive crude oil production in the United States since August 31, 1929, the peak for all time, has successfully reduced the daily average by a total of 459,250 barrels. During the interval between that date and March 29, 1930, California's production has been reduced 243,800 barrels daily; Oklahoma's total decline has amounted to 120,750 barrels daily, in addition to the curtailment in force prior to August 31, 1929; Texas daily average has been lowered 79,450 barrels and the balance of the United States has shown a net decline of 15,250 barrels daily. When we consider the alarming situation that existed in California only a short time ago, it is apparent from the facts at hand that this state has perhaps exhibited the most remarkable degree of co-operative curtailment effort thus far attained anywhere in the United States. At the same time, credit must also be given to Oklahoma operators for their constructive efforts to continue to curtail production to the point where it has been necessary to supply at least a part of current requirements by withdrawals from storage. Although Texas has succeeded in reducing daily crude production 79,450 barrels during this period, the facts indicate that at least 100,000 barrels more must be pinched in before the situation in this state can be considered on a parity with the situation in California and Oklahoma.

TABLE 1
Survey of 1930 Gasoline Requirements

Domestic Demand		397
Foreign Demand		75
Total Demand		472
Less		
Natural Gasoline	53	
Benzol	3	
Imported Gasoline	13	
1929 Excess Supply	10	79
Maximum Production Required		393
At 40 per cent yield, crude required		980

Following publication in THE OIL WEEKLY of preliminary data presenting a conception of the indicated crude requirements for 1930, which was interpreted in terms of a monthly daily average, the writer carried his investigations further in order to arrive at a more accurate picture of the situation confronting the producer, as well as interpreting his findings in terms that would offer a reliable index of the true status of current reported production in relation to current requirements. This resulted in a revision of former demand estimates, crediting the industry with a somewhat larger demand for domestic crude, and in the conclusion that the only fair way to gauge week-to-week production in comparison with normal requirements is on a quarterly basis. Apparently, many in the industry regard a normal daily average for the year as a reliable barometer by which to gauge current daily average production. Various experiments along this line have, however, convinced the writer that the yearly daily average as well as the monthly daily average is misleading, particularly since in the former case the normal average

TABLE 2

Basis for Normal Crude Production—1930

(Thousands of Barrels)

	Total Refinery Demand	Foreign Crude	Domestic Crude	Exports and other Cons.	Normal Domestic Crude Requirements	Daily Average	Quarterly	Cumulative
January	77,906	6,306	71,600	2,788	74,388	2,400		
February	71,192	5,785	65,407	2,809	68,216	2,436	2,434	2,434
March	79,521	6,490	73,031	3,467	76,498	2,468		
April	79,767	6,464	73,303	2,946	76,249	2,542		
May	83,416	6,785	76,631	3,377	80,008	2,581	2,605	2,520
June	83,437	6,863	76,574	4,261	80,835	2,694		
July	84,807	6,932	77,875	3,830	81,705	2,636		
August	87,360	7,168	80,192	4,261	84,453	2,724	2,700	2,581
September	85,830	6,975	78,855	3,394	82,249	2,742		
October	84,879	7,002	77,877	4,569	82,446	2,660		
November	81,768	6,695	75,073	3,831	78,904	2,630	2,591	2,584
December	80,117	6,535	73,582	3,467	77,049	2,485		
Total	980,000	80,000	900,000	43,000	943,000	2,584		
Daily	2,685	219	2,466	118	2,584			

compared with current production does not consider necessary seasonal variations, while in the latter case, previously accumulated excesses cannot be used as a correction factor from month to month. The use of a quarterly production quota, as illustrated in the tables accompanying this article, not only considers seasonal variations in demand but also establishes a most reliable index through succeeding quarters by the consideration of any excess that may have been accumulated in the preceding quarter.

Table 1 presents a revised analysis of the gasoline requirements for 1930. Subsequent study of this year's gasoline requirements prompted the inclusion of benzol as a constituent in saleable motor fuel, necessitating the elimination of three million barrels from the normal quantity to be produced by refineries. This brought the maximum production figure down to 393 million barrels and the total crude equivalent to a maximum of 980 million barrels. Table 2, shows a detailed analysis of the monthly normal crude requirements for this year and the monthly and quarterly daily average production requirements. Since information obtained from reliable sources indicates that imports of crude will not materially exceed those of last year, the writer has reduced that figure to 80 million barrels. By reducing refinery runs 10 million barrels and cutting expected imports 20 million barrels, the net result allows an increase in total American crude production this year, over previous estimates, of 10 million barrels. While the total domestic crude requirements are slightly greater than in 1929, the facts presented in Table 2 show that normal production this year must be curtailed at least 63 million barrels under the total production of last year. In order to attain this desired end, the industry must observe the limitations prescribed by the indicated normal demand.

Indicated Normal Demand

Table 3, presents a divisional proration of this year's normal crude requirements, based upon the indicated normal demand during 1929. Study of the final figures for last year reveals that production actually exceeded normal requirements by 74 million barrels. This table shows that California was chiefly responsible for the huge excess production of last year. In each case, it will be noted that the 1930 production quota has been distributed over the leading states on the basis of the indicated normal demand, rather than on the basis of actual or potential production. In this way, it has been possible to determine a fair and reliable production quota for each of the states listed and for the United States, resolving itself to a daily average figure for the current year. Since the use of an annual daily average presents a more or less distorted picture when compared with week-to-week production reports, it will be obvious to the reader that a more reliable index is offered by establishing production quotas on a quarterly basis, as shown in Table 4.

A study of the figures presented in Table 4 reveals the necessity for increasing production during the second and third quarters of the year, corresponding to the indicated normal increase in demand. Analysis of the situation during the first quarter of this year, however, shows that production of the United States exceeded the normal quota for the same period by about 170,000 barrels a day, which must be deducted from the quota to be set up for the second quarter. Had production been maintained at a rate conforming with normal requirements, the quota for the second quarter would have allowed a total daily increase in American crude production of about 170,000 barrels, or a daily total of 2,605,397 barrels. As it is, the elimination of the excess production of the first quarter will make it necessary for producers to maintain the normal quota of the first quarter through another three months.

With the exception of Texas, it is believed that producers will not experience much difficulty in maintaining production at present levels, since proration schedules contemplate continued curtailment along the lines in force up to this time. Texas operators, however, are faced with the prospect of having to curtail production to an even more marked degree than is indicated by the results of the first quarter. As will be noted from the facts presented in Table 5, the daily output of crude in Texas is still 102,779 barrels in excess of the normal quota, having shown a net decline of only 11,650 barrels since March 1. During that same period, California succeeded in lowering production an additional 92,000 barrels from the high record of last August, while Oklahoma extended its favorable margin between supply and demand by more than 2000 barrels daily. These figurges show that conditions in the producing branch of the industry have shown remarkable improvement and indicate what a splendid condition could now prevail if Texas had carried out a more rigid pro-

TABLE 3

Divisional Basis of Proration

(Thousands of Barrels)

	Actual Production 1929	Indicated Normal Requirements 1929	Indicated Normal Requirements 1930	1930 Daily Average (Bbls.)
Arkansas	25,076	25,000	25,297	69,306
California	292,037	239,587	242,431	664,188
Kansas	42,875	41,510	42,003	115,076
Louisiana	20,229	20,750	20,997	57,525
Oklahoma	253,704	244,773	247,678	678,563
Texas	298,441	275,919	279,194	764,908
Bal. U. S.	73,236	84,390	85,400	233,970
Total	1,005,598	931,929	943,000	2,583,537

gram of curtailment. In fact, if it were not for the excess accumulated in Texas, the industry would now be obliged to withdraw a part of the current crude requirements from storage.

No Texas Advance

Many operators in Texas seem to be of the opinion that the economic structure of the crude market has improved sufficiently to warrant a boost in posted prices. Such opinion is undoubtedly based upon mere rumors, that originated with the justifiable belief of higher crude prices in Oklahoma. Unfortunately, conditions in Texas do not seem to warrant an advance in prices, since there is not only a most noticeable excess production of crude, but also a decided excess utilization of crude by refineries within the state. Not only has the demand for Texas crude been artificially stimulated by excessive refinery runs, but a considerable portion of the crude taken by large pipe line companies is being run to storage that must be reduced before the major purchasers will be inclined to pay higher prices for crude. Perhaps if there was less storage space available in the state the major companies would have forced curtailment by a necessary reduction in pipe line runs. As it is, however, many producers are having no difficulty in disposing of their oil at present prices, and could probably continue to do so for some time to come. The real issue, however, lies in the belief of producers in Texas to the effect that they are entitled to higher market values for their oil. It is a well known economic fact that as long as the ratio of current supply to demand shows an unfavorable condition, it is almost impossible to expect an advancing crude market. In the final analysis, the situation in Texas resolves itself to two courses; either the producers must reduce output voluntarily, in order to justify a higher crude market, or they must be willing to accept present prices for a longer period.

Potential No Proper Factor

It is pointed out by various Texas operators that this state represents the largest potential oil producing area in the country, and, on the basis of present actual output, is really doing more than any other state in the direction of curtailment. While this is undoubtedly true, it must be conceded that the rate of demand, based upon past experience, is the only sound guide upon which to base the production quota of any state. Whether Texas could produce 800,000 barrels of crude a day, or 2,500,000 barrels a day, is not the question at this time. The only logical and sane course open to operators in Texas lies in the direction of curtailing actual daily production to a level that will balance the current supply with current requirements. Until that is accomplished as it has been accomplished in California and Oklahoma, the situation in Texas will continue unfavorable for a higher crude market. Under present conditions, the only opportunity for diminishing the large above-ground supply lies in the direction of strenuous competition with other producing states. This method would necessarily be slow of accomplishing the end desired, and in the meanwhile the producer continues to receive the same price for his oil. It must be obvious to all that the quickest and most direct road to improved marketing conditions lies in the direction of lower production schedules. If the industry can command a higher price for a smaller quantity of oil, the result will not only benefit the producer but will materially aid in conserving the underground reserves for future normal requirements of Texas as well as the rest of the world. In this connection, it is a well known fact that the vast potential supply of crude in Texas could be quickly dissipated if production of its major producing areas were allowed to flow unrestrained. The economic value of rigid proration to Texas operators was previously pointed out to a representative number through a compilation prepared by the writer and presented early in February at the Fort Worth meeting. This showed the effect of producing 100,000 barrels less per day, at an average increase of only 21 cents a barrel, which amounted to a total financial gain for the industry in Texas of more than 20 million dollars this year. After all, it is not a question of how much oil you can release to the crude buyer, but how little you can deliver for the same or a larger financial return.

Further studies are now being conducted on the economic status of the Texas crude situation, which is designed to furnish the producer with further information concerning necessary production quotas by fields, as well as a more vivid conception of the true status of current and future refinery demand. The refining situation in Texas presents a rather unfavorable picture at this time, with cheap crude being consumed at an unusually excessive rate. This also tends to becloud the horizon for the producer, as the market for refined products, especially gasoline, is not conducive to the payment of premiums or higher posted prices for crude. As the industry enters the second quarter of the year, with improvement apparent in practically all producing areas outside of Texas, it is up to operators in this state to proclaim the need for immediate curtailment and endeavor to emulate the action taken by oil operators in California. There is little doubt over the ability of operators in Texas to cope with the over-production problem, and it is firmly believed that concerted action would quickly place the state in a favorable position to make the first advance in Oklahoma the signal for a general, economically justified, higher posting for crude throughout the entire Mid-Continent area.

TABLE 4

1930 Daily Average Production Quotas by States

(On Quarterly Basis)

	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Arkansas	65,310	69,879	72,431	69,518
California	625,849	669,791	694,149	666,139
Kansas	108,421	116,044	120,222	115,407
Louisiana	54,199	58,011	60,116	57,704
Oklahoma	639,371	684,274	709,115	680,541
Texas	720,771	771,384	799,361	767,167
Balance of United States	220,476	235,945	244,509	234,674
Total	2,434,397	2,605,328	2,699,903	2,591,150

TABLE 5

United States Crude Production Status as of March 29, 1930

	Necessary* Daily Average 1st. Quarter	Actual Daily Average March 29	Excess Mar. 29, 1930	Excess March 1 1930
Arkansas	65,310	58,600	—6,710	—6,810
California	625,849	631,100	5,251	97,151
Kansas	108,421	114,500	6,079	6,281
Louisiana	54,199	63,800	9,601	10,551
Oklahoma	639,371	615,000	—24,371	—22,171
Texas	720,771	823,550	102,779	114,429
Bal. U. S.	220,476	207,650	—12,826	—9,878
Total	2,434,397	2,514,200	79,803	189,553

*NOTE—On succeeding Quarters, necessary figures will be corrected by eliminating excess accumulated in preceding Quarters.

View of Oklahoma City field while Mary Sudik 1 was flowing wild. The pools in the foreground are oil.

"Wild" Mary Sudik Under Control *After 11 Days' Effort*

By GRADY TRIPLETT
Staff Representative

OKLAHOMA CITY.—It was the skinner, who noticed it first.

"They're puttin' something on her," he called out. Then he stopped his team and we all listened. We were a quarter of a mile away from Mary Sudik No. 1, which was in its twelfth day as a wild well at the south edge of the Oklahoma City pool.

"Hear her change her tune," again it was the skinner who spoke. The skinner had been going back and forth between the point where trucks were halted and the well location. He know the roar of the well and he was correct in his verdict that the well was changing its noise.

At the brow of the next rise we verified his sense of sound, for the column of oil, gas and sand had been spread at the derrick floor. There was an obstruction in the path of the flow.

That was about 4 o'clock Sunday afternoon, April 6. Three hours and seven minutes later, a signal from the derrick floor brought two chain tongs into play. Up and down those tongs went, like pump handles, turning the long pipe which was playing the part of a huge wrench on the master gate. One and one-half minutes later the roar of the well ceased and the Mary Sudik was silent, leaving only the pounding of the pumps to break the stillness of the twilight.

Shouts of celebration came from the successful crew, who then began pulling off oil-drenched rubber clothes. Twice before in that 12 days the well had been silenced, only to break away. But this time no member of the crew would have it any other way except successful.

Tap and Nipple

This third attempt was made with a tap and steel nipple, which when turned in place would cut threads inside the seven-inch casing, as well as run over battered threads on the outside casing and cut additional threads below the outside threaded part. In addition the device had a lead-packed flange connection, to be fastened around the joint by screwing the lower plate to the top plage with stud bolts.

The tap and steel nipple, with male and female threads, had been packed with lead when made, so that turning it to make the connection would automatically form a lead packed connection for the threaded assembly. The tap and nipple had been fluted, to assist them in taking hold on the pipe and also to allow recesses for cuttings. On both the male and female parts, above the fluted parts, were perfect threads, which when turned far enough would take hold of the threads started in the fluted sections.

This assembly for making the connection had been attached to an ordinary Christmas tree of two master gates, flow beans and other equipment essential to flowing the well. Above the top master gate of the Christmas tree a section of pipe was placed for assistance in bringing the device into position.

The combination tap and die nipple, with flange, had to be brought directly over the seven-inch casing, through which the well was flowing wild. This pipe had 14 inches of free space above the casing support and packing head. Previous efforts to close the well had damaged the threads on the outside of the seven-inch pipe. Damage to these threads as well as the extreme pressure of the well made it essential to make the next connection with threads both inside and outside the seven-inch casing.

The whole assembly was swung into the derrick by tieing onto the pipe, which extended above the Christmas tree. Then a vane, which resembled the ribs to an umbrella, was attached to the assemble, its members attached to different parts at the derrick floor. With these stays the device could be brought down against the pressure of the well.

To bring the connection into proper position, four chain hoists were attached below the bottom master gate and each hoist anchored to a derrick post. By manipulating these hoists the combination die and nipple was shifted until it was directly above the casing. Then power applied to the members of the vane, together with the weight of the device, brought the die and nipple against the top of the seven-inch casing.

With power applied through the draw works the task of cutting the inside and outside threads began. Gas furnished the power. It came to the steam engine under high pressure, so the equipment at the well was working after the fashion of steam but really from the pressure of gas.

While the die and nipple were being

brought down to the casing, the master gates of the Christmas tree were left open. This allowed the pressure of the well to pass through the Christmas tree and upward into the derrick through the pipe.

Power was first applied to the Christmas tree with tongs. As the assembly was turned, the flow under the derrick floor became less, while that through the Christmas tree increased. Finally power was applied until the largest tong on the derrick gave way. Then a pipe was attached to the Christmas tree with a chain and this was used as a tong and the connection further tightened until the pipe bent.

By this time the flow below the derrick floor had ceased, indicating that the die and nipple with the lead packing had made a successful connection. But the lead packed flange was put in place to give the joint further resistance to the pressure of the well. When the flange had been drawn up, the connection consisted of a screwed connection inside the casing, with new threads cut with the die, a screwed connection outside the casing with old threads grooved and new ones cut beneath them, and a lead packed flange around the double screwed connection.

This device for conquering the well had its beginning Saturday morning, when officials of the Indian Territory Illuminating Oil Company in Oklahoma City called the Hinderliter Tool Company in Tulsa. When an engineer of the company staff arrived in Tulsa by airplane, A. L. Stewart of the Hinderliter Tool Company had a pencil sketch complete of what he thought would make the connection. The idea met the needs.

All approaches to Oklahoma City field were protected and guarded

After the engineer from the field had given a description of conditions at the well, the shop force in Tulsa set to work to complete the tap and die nipple and flange. The work was carried on Saturday night and until noon Sunday. About one o'clock the device was taken to the air port and the engineer started for Oklahoma City. Meanwhile the well had been prepared for the third effort and the Christmas tree had been assembled at the well. The tap and die and flange were then attached to the Christmas tree and the assemble was ready for bringing over the casing.

All day Sunday the scene about the well resembled those familiar to members of the A. E. F. in France. Men, clad in rubber suits, trudged about the derrick floor, handicapped by the roar of the well, the oil coat on every object, their own clothing, as well as the fatigue of several days on one task, with no assurance of its successful completion. Frequently some member of the crew would stumble away from the derrick, followed by two of his mates, who found water and helped him to a place of semi-comfort.

"Got a little too much gas," some member of the small band of observers would remark. A few minutes later the man would be back at his work.

Workmen had their ears stuffed with

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WILD WELL SIDELIGHTS

THE MARY SUDIK proved a magnet for those who had plans for controlling the gusher. One trouble-browed individual appeared at the Oklahoma City headquarters and asked for the chance to try his hand. For qualifications he stated that he had spent three sleepless nights worrying about the well and believed he could devise a method. He admitted that he had never worked in an oil field but countered with the assertion that he could imagine some means of overcoming each problem the "young engineers" had mentioned.

At last reports he was going from one company executive to another trying to get a job.

THE height of foolhardiness was reached when thieves were found within the forbidden area around the well. One had taken the brass parts from some valves and was making away when a watchman on an idle well caught him. Another pilfering individual got within the area after dark with a wagon and was prepared to haul away some timbers.

THE MARY SUDIK proved the most effective shutdown force the Oklahoma City field ever had. About 100 drilling wells were ordered shutdown.

THE well also proved effective in curtailing the milk supply of a large area. Farmers and dairymen south of the well reported that their cows had ceased to give the normal amount of milk. Oil soaked grass and oil coated water supplies were the cause.

THE HORSE came into his own in the south part of the field. All trucks had to be halted a mile distant from the well. There all materials had to be transferred from trucks to wagons, and old dobbin or the "Missouri canaries" took up the burden on hauling in necessary supplies for the well.

Officials of Indian Territory Illuminating Oil Company also used horses for getting about over the restricted area.

SOMETHING to think about later will be damage. Norman, seat of University of Oklahoma, 11 miles from the well, felt the spray of oil at times. Over a wide area families had to be moved out of homes. Farm lands and improvements soon became coated with the high grade oil from the well.

SOMETHING may happen later to cause a fire but the working force on the wild Mary Sudik Saturday afternoon, April 5, had to its credit 10 days of labor without the well catching fire. When it is remembered that each second of that time offered a chance for a fire the record stands as a remarkable achievement.

STORES in the field did big business in chewing tobacco during the period. In order to pass the second line of guards a man had to give up his matches. With smoking in the taboo class chewing became the substitute.

Those in charge of passes faced a serious problem. Dozens of workmen were ordered from the area and shortly found themselves in need of clothes which had been left at their bunk houses.

Early Advance in Crude Prices Seen for Texas and Mid-Continent

By H. H. KING
Staff Representative

FORT WORTH.—An early advance in crude price quotations throughout the Mid-Continent and most Texas fields is indicated by the growing popularity of crude connections and storage oil, while the steady rise of wholesale prices on gasoline is largely based on the supposition that raw material will be higher in price after the middle of April. This upward trend of gasoline quotations has been supported by heavy sales at all refining centers, with current consumption showing a gain for the early spring season.

Major crude purchasing companies that initiated the crude price cut January 15, are expected to take the lead in restoring prices so as to reap whatever volume of good will may be gained among the operators. Some of the companies, whose officials severely criticised the January price cut and backed up their opinions by refusing to meet the lower schedule until a month later, are known to be harboring a desire to lead off in restoring prices to their former level. Companies that held off on adopting the last price reduction are being shown preference by independent operators in allotting pipe line connections. This condition is particularly noticeable in Texas, where two opposing factions of oil producing units have appeared on the horizon within the past three months, with the crude price cut indirectly responsible for the division in ranks of the operators.

Eagerness on the part of a few major crude purchasers to literally obtain a lion's share of the oil produced in the upper Mid-Continent and Texas led to the January price reduction not being met by all companies promptly. The aggressors found need for the cut, while those operating on a conservative basis deplored the cut. Since the beginning of 1930, substantial withdrawals from crude stocks have been made by Prairie Oil & Gas Company, Sinclair Crude Oil Purchasing Company, Magnolia Petroleum Company, Shell Petroleum Corporation, Atlantic Pipe Line Company and others.

Production restrictions now in effect in Oklahoma, Kansas and Texas have lowered the daily output of the three states almost to the level set by the crude buyers as the necessary goal to reach before the general price structure is restored. Operators in the former two states were reluctant to adopt rigid proration rules until after the price cut, while the previous good work accomplished in Texas in the way of proration and restricted drilling of disturbing fields became terminated on the day of the price drop.

Voluntary Restriction Fails

As evidence that the January price cut has had the opposite effect in Texas as compared to that in Oklahoma and Kansas, a breakdown in voluntarily restricted fields followed, and proposed enforcement of drilling and production restrictions in other fields had to be dropped because of the ranks of the producers being divided into two factions. Other than the routine formality of extending proration periods in the Yates field and in Howard-Glasscock Counties, the operators in Texas have refused to co-operate as a unit in applying an equitable conservation plan in such fields as Refugio, Southwest Texas; Judkins, West Texas; and Finley-Brown, Gray County section of the Panhandle.

Continuation of the hearty support being given proration plans in Oklahoma and Kansas by independent and major companies rests on an early restoration of crude prices to their former level, while a similar tonic must be given the operators in Texas to restore the co-operative spirit, providing the factional barriers have not become too firmly entrenched.

All grades of crude in Texas are regaining their popularity with purchasing and pipe line companies, as indicated by an epidemic of new pipe line work within the past 45 days by major companies so as to bolster up their supplies. With few exceptions, these new lines serve as open invitations for operators to proceed with development of leases and sell their crude as produced. A few of these lines create a surplus crude market outlet for the fields being invaded, and the natural result is for the operators to lend a hand in boosting production so as to load these carriers.

Humble Pipe Line Company, which is the transportation subsidiary of the Humble Oil & Refining Company, has undertaken four important pipe line extensions within the past two months, and these projects apparently indicate that the latter is no longer suffering from burdensome stocks of crude. Humble Oil & Refining Company initiated the crude price reduction in Texas on January 15. The four new lines will net the company between 30,000 and 50,000 barrels of additional crude supply by the middle of the year. Humble Pipe Line Company is invading the Refugio field with a 28-mile eight-inch line from its refinery and deep water terminal at Ingleside, near Corpus Christi, and will be almost entirely dependent upon purchased oil, as the Humble Oil & Refining Company has not become an important producer in the field.

Humble Builds Line

Although Humble Oil & Refining Company expects a large production from its holdings in the deep sand area of the Humble field, a four-inch line has been built by the Humble Pipe Line Company to the field from Baytown, a distance of about 20 miles, to draw on purchased oil to a large extent until the deep production materializes. Humble Pipe Line Company completed a 15-mile six-inch line extension to the Judkins field, West Texas, about April 1 to displace the Burford Oil Company's connections to the producing leases of the Humble Oil & Refining Company et al.

Co-incident with the announcement made March 27 by the Atlantic Pipe Line Company that its West Texas system would be extended to the Hobbs field, New Mexico, to provide a market outlet for all completed wells in the field, Humble Pipe Line Company announced that construction work would likewise be started from its Jal field station, New Mexico, to the Hobbs field. This latter line requires about 40 miles of pipe, which will be eight-inch in size, and steel tanks will be erected in advance of the completion date set for the line.

Atlantic Pipe Line Company is in need of oil to support its 10-inch carrier, which extends from Winkler County, West Texas, through Midland station and tank farm to Atreco, near Beaumont. This line is operating at about 60 per cent normal capacity, and since it is largely dependent upon Winkler County crude for a supply the Hobbs field offered the best prospects for an adequate supply to offset the steady production decline taking place in the former area. Atlantic Pipe Line Company is routing its line from Midland through the lone wildcat producer, in Andrews County, thence on a direct line to Hobbs, a distance of 78 miles. Eight-inch pipe will be used in

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Paper presented before the April 10, 1930, meeting of the Southwestern District of the A. P. I. Division of Production at Midland, Texas

Problems in Air and Gas Injection In Producing Oil Sands

By E. V. FORAN

Production Engineer, Fain-McGaha Oil Corporation, Wichita Falls, Texas

OBSERVATIONS during the past few years with respect to the use of air, wet gas, or dry gas in the process of repressuring oil sands, have indicated variable reactions, depending upon the conditions under which the air or gas was applied. Preceding the active injection of air or gas in the sand, a thorough survey of the current oil, gas and water production should be made on as many individual wells as possible. The condition of the wells should also be carefully determined.

A survey of this character is of greatest value when made during the early life of the lease or pool, or at any time while the reservoir pressure is still very active in driving oil into the well. Under these conditions the gas-oil ratio of the different wells serves as an indicator of the relative oil and gas saturation of the sands surrounding the different wells. High gas-oil ratios under these conditions will indicate medium or low saturation of the sand while the low gas-oil ratios will indicate in general a highly saturated sand. It is possible also that some tight sands may have a high saturation and yet show a high gas-oil ratio, due to the ability of the gas to migrate through the tight sand more readily than the oil.

In those cases where surveys preliminary to repressuring the later life of the pool are carried out, the gas-oil ratio is far less dependable as an indicator of saturation than it is during the early life of the pool, and may at times be very misleading. Due to the fact that gas depletion in any oil producing sand always precedes oil depletion, it is entirely natural to observe very low gas-oil ratios in the later life of the pool. The low gas-oil ratios under these conditions may be due to a number of factors which have greatly changed during the period between the early and later life of the pool. It is therefore evident under these conditions that low ratios may prevail as a result of normal depletion.

However, other surveys made during the later life of the pool, in which similar low gas-oil ratios prevail, may indicate a sand which has suffered little depletion of its oil and may contain large reserves readily recoverable by repressuring methods. This is true in those cases where the initial reservoir pressures were low and where only a very small volume of gas accompanied the initial oil production. Under these conditions insufficient gas energy results in ineffective drainage and limits the normal oil recovery to much less than could be expected where larger volumes of gas at higher initial reservoir pressures existed under otherwise similar conditions.

When the condition mentioned above exists in the later life of the pool, it becomes necessary to supplement the normal preliminary survey by the application of a vacuum to a number of individual but representative wells. If the wells are clean and the pumps in good condition, a vacuum ranging from 15 to 25 inches of mercury may be applied. If the sand is fairly well saturated and offers a low resistance to the movement of fluid, a sharp increase in production will be observed. These conditions practically assure the success of any repressuring operation that may follow. If, after five to ten days application of vacuum little or no reaction is observed when the wells are known to be in good condition, it is evident that the sands offer high resistance to the movement of fluid; this will necessitate high working pressure when repressuring. The results will be doubtful although failure of the vacuum test does not necessarily imply that repressuring will fail.

Where reactions to vacuum are favorable, only low pressure and a relatively small volume of gas will be required. The application of the vacuum test method outlined above, when carried out carefully, enables an operator to determine rapidly and at low cost, the reaction to be expected from repressuring on older properties. The vacuum test on properties during the early life of the pool or when reservoir pressure is moderate, will not serve as a reliable indicator of sand conditions.

Use of Gas and Air

Both gas and air have been widely used in repressuring operations in Texas recently, but to date nothing conclusive as to their relative value as recovery agents is available. In nearly all cases necessity governs an operator's choice between the use of air or gas as the repressuring medium. The relative value of air or gas can not be definitely determined except by application over a long period and under fairly uniform operating conditions. No information is available of operations under these conditions. As an example somewhat approaching this condition the following account is given of four years repressuring operations on a group of four adjoining leases in the Harmel pool, Southwest Archer County, Texas, in which air, wet gas and dry gas were applied during this period.

Development work on the four leases started in September, 1924, and the drilling was completed in June, 1925, no completions having been made since that time. The producing sand is found at 1280 to 1350 feet and varies in thickness from six to 20 feet. While the

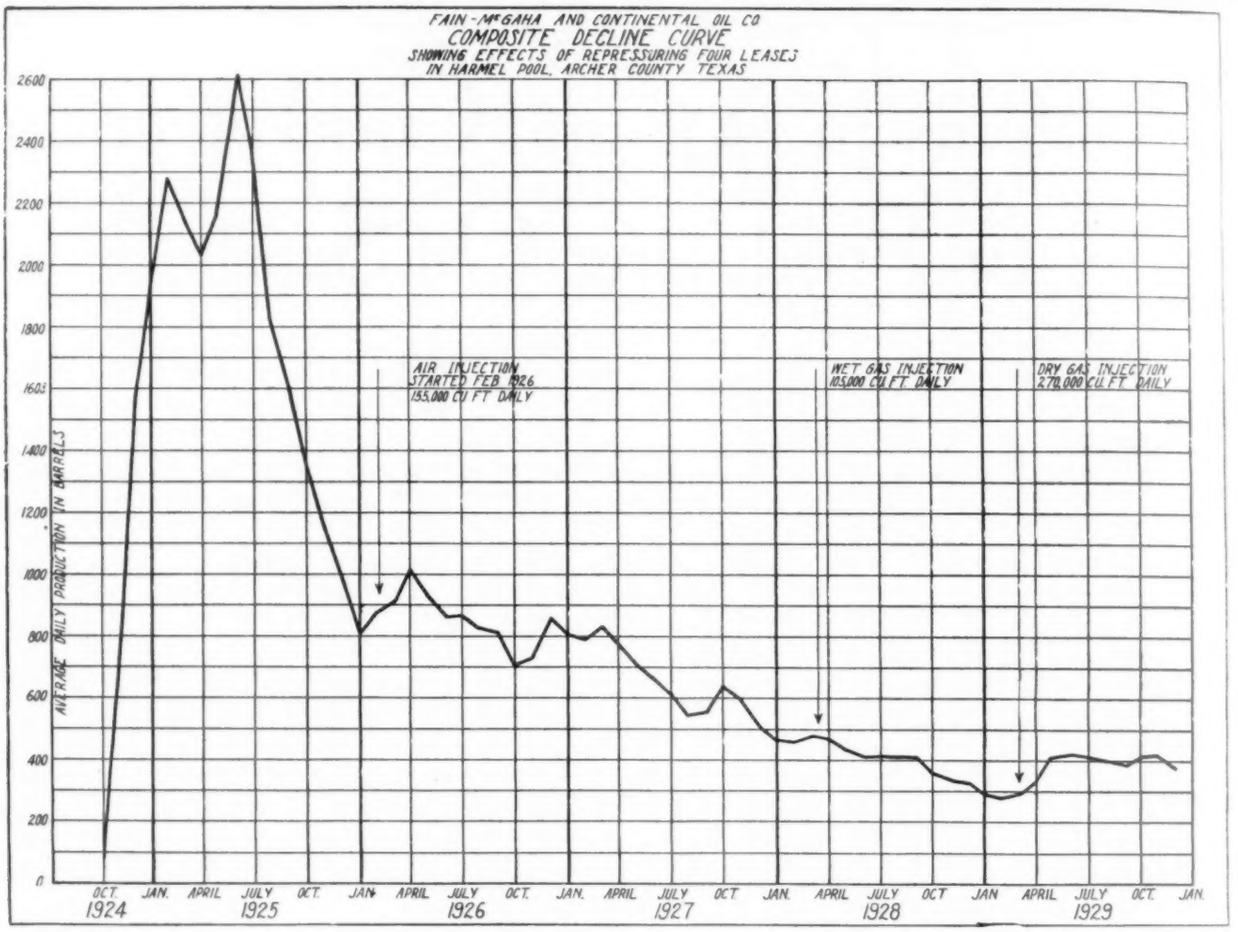
Division of Production in Session at Midland

Midland, Texas. — Members of the southwestern district, A. P. I. Division of Production, are meeting here April 10 at the Scharbauer hotel. The morning session was called to order by W. H. Meier, after which L. E. Barrows, The Texas Company, presented a paper, "Method of Proration in Texas Fields," which was followed by a discussion. A second paper scheduled for the morning session was, "Air and Gas Injection Problems," by E. V. Foran, Fain-McGaha Oil Company, Wichita Falls.

Program for the afternoon session follows:

Report of the special committee on a standard power rate structure, by E. G. Allen, Shell Petroleum Corporation, Dallas; "Purpose and Organization of A. P. I. Field Chapters," by J. R. McWilliams, Skelly Oil Company, Tulsa; and a "question box" conducted by E. V. Foran. Following committee reports, the annual election is scheduled.

A trip through the Yates and Big Lake oil fields had been arranged by the committee with transportation furnished.



sand is loose in most wells, some wells indicated extremely tight sand conditions. Upon completion of both tight and loose sand wells only a small volume of gas was observed although many of them were good oil producers. A total of 68 wells were drilled on the four leases but 15 of them were abandoned during the first two years because of low production.

Referring to the accompanying chart, showing a composite production decline curve of the four leases, it is apparent that the decline from the production peak was very rapid, although water encroachment played no part in it. The decline was probably due to the small volume of gas and a low initial reservoir pressure. In view of these circumstances the operators decided on a repressuring program and began injecting air into the sand in February, 1926, seven months after the peak of production. Although the decline rate at this time was very rapid, the reaction was sharp and a progressive increase in production was observed during the following 90 days. By August, 1926, all four of the leases were being repressured and gave very good results.

During the 14 months following the injection of air, the production was maintained with a very low decline rate. The volume of air injected into the sand during this period was approximately 155,000 cubic feet per day.

There were five input wells and the pressure required to force the gas into the sand varied from 10 to 45 pounds per square inch. During the latter part of 1926 and early in 1927 a progressive increase in water was noticeable but did not seem to affect the production, although corrosion of well equipment became evident. By August, 1927, corrosion became so severe and threatening that it did not seem advisable to continue with the air in spite of the good results. During the period February, 1926, to August, 1927, little attention was required in repressuring practice and operations were routine.

In August, 1927, a careful survey of corrosion conditions was made. The output gas of each of the 41 producing wells was analyzed and air was present in all of them. The air content of the gas produced from individual wells varied from seven per cent to as high as 95 per cent. The air content of the gas by leases varied from 46 to 77 per cent. The air and salt water caused excessive corrosion of rods, tubing and casing as well as the working parts of the pump. The volume of air injected into the sand at this time was 165,000 cubic feet daily but this amount was reduced to 130,000 soon afterward.

Following the survey of conditions it was decided to recirculate the air-gas mixture of the lease showing the 77 per cent air instead of continuing the injection of free air, to determine if it were not possible to filter out most of the air. This would be accomplished by returning a total of only 70 per cent of the output mixture to the sand. This process would result in a constant depletion of the volume of air in the sand and in circulation because no additional free air would be injected into the system, yet 30 per cent of the daily air content of the output gas would not be returned. All of the air-gas mixture produced from the other leases during the previous period of repressuring went to a casinghead gasoline plant after being diluted with wet gas from other leases in the pool. Recirculation of the air-gas mixture on the first lease was started November 10, 1927. At this time the air content of the output gas from this lease averaged 77 per cent. During the following five months the air content was progressively reduced and production was maintained. The change in the air content of the output gas varied as follows: November 77 per cent, December 62 per cent, January 56 per cent, February 51 per cent, March 46 per cent, April 41 per cent. This trend of reduction in the air content also reduced corrosion troubles. The recirculation of the wet air-gas mixture which carried 3.5 gallons of gasoline per 1000 cubic feet also increased the gravity of the

one degree A.P.I. During the period from November, 1927, to April, 1928, the injection of free air continued on the other three leases.

As a result of the observed reaction to the recirculation of the air-gas mixture it was decided to do likewise with the other three leases in an effort to ultimately use the natural casinghead gas for recirculation as no other source of gas was available. In April, 1928, recirculation of the air-gas mixture was started on all leases, the first reaction to this change being a rise in the gravity of oil on all of the leases but a decline in production. The decline was due to an insufficient volume of air-gas mixture to supply both lease fuel and repressuring requirements. The total volume of the wet-air gas mixture available for return to the sand at this time was 105,000 cubic feet. The object in using the air-gas mixture was not to increase production as much as it was to eliminate the corrosion due to the use of free air.

As the available volume of wet gas decreased during the following months, corrosion disappeared when the air content was reduced below 15 per cent. During the winter of 1928-1929 the volume of wet gas available for return to the sand became insufficient to give desired results. There was a progressive rise in the gravity of the oil from April 1928, to November, 1928. The gain on different leases varied from 0.7 degrees to 1.2 degrees A.P.I.

In March, 1929, a supply of 0.60 gravity dry gas became available in the district and it was decided to use dry gas exclusively for repressuring and deliver the wet gas to a gasoline plant for treatment. Late in March, 1929, the injection of air-gas mixtures was discontinued and dry gas was turned into the same input wells. The volume of dry gas required by the sand was greatly in excess of the wet gas required for favorable results under approximately the same conditions. Large volumes of dry gas were required to increase production and it was several months before the daily gross output of gas even equalled the daily input volume whereas during the previous three years, using air and wet gas, the output gas volume always exceeded the input gas by 30 per cent. The reason for the failure of the output gas volume to exceed the input volume during the period of dry gas injection, is not known but may possibly be due to its ability to migrate more readily to tighter areas in the sand than that occupied by the wet gas and air. This might be explained due to the viscosity of 0.60 specific gravity gas being much less than that of air or 1.08 specific gravity wet gas. It was clearly noticeable that the dry gas had a tendency to "channel" or bypass the oil much more readily than the air or wet gas. The air and wet gas did not show any tendency to bypass the oil during the entire period of three years during which they were applied whereas the dry gas has given considerable trouble in this respect throughout its period of application. However, this may be due in part to the increased volume of dry gas used. It is also noticeable that the dry gas has resulted in a marked decrease in the gravity of the oil. Had a sufficient volume of wet gas been available for use in repressuring, it is probable that excellent results would have been realized, as even at the low pressure in which it was used (10 to 45 pounds per square inch) a portion of it was readily soluble in the oil due to its high gasoline content of 3.5 gallons per 1000 cubic feet. Under these low pressures very little dry gas or air can be absorbed by the oil.

A study of the decline curve and a summary of the results observed during the past four years on these leases would seem to support the following conclusions with respect to the use of air, wet gas and dry gas:

1. That air may be used for repressuring purposes as a substitute for gas without disadvantage only when there is no water produced with the oil.
2. The gravity of the oil during repressuring operations will not be reduced while the natural wet gas is recirculated.
3. That dry gas has a tendency to channel more readily than either air or wet gas.

Distribution of Gas and Air in Sands

In cases where the operating pressures are high the distribution of the gas and air in sands whose wells are small is best controlled by the direct application of back pressures. In the case of larger wells which will permit, it is better to adjust the length and frequency of the stroke to the point which produces only a portion of the wells potential production, and results in a high constant fluid level being maintained on the sand. The pumps in both cases should be placed as near to the bottom of the well as pumping conditions will permit in order that the face of the sand may be kept free of water.

Repressuring Equipment for Field Test Purposes

Due to the expansion of repressuring operations at the present time it is increasingly difficult for the operators to choose compressor equipment suitable to the particular conditions which they are encountering in recent practice. There seems to be considerable difficulty in acquiring high pressure equipment suitable for small scale field testing. Due to many unforeseen factors during the course of experimental repressuring it would be of great value to the operators to be able to obtain small equipment of a convertible nature. That is to say compressors whose cylinders or bearings may be interchangeable or replaceable in order to withstand higher pressures than those for which the present standard small equipment is designed.

Early Advance in Crude Prices Seen for Texas und Mid-Continent

(Continued from page 28)

the extension line, and three 55,000 barrel steel tanks are being erected to purchase oil prior to the completion of the carrier.

Magnolia Completes Line

Magnolia Pipe Line Company is sharing in the new pipe line extension work in a minor way, having recently completed a 17 mile six-inch line from Electra field to the Sigler-Waggoner section of Wilbarger County. This line will perform common carrier service for the Atlantic Oil Producing Company to Atreco, Texas, and daily runs are being augmented by Magnolia Petroleum Company booking outside crude connections in the field. Magnolia Pipe Line Company has also extended its Luling system to take about 800 barrels of production held by A. L. Buchanan & Danciger Oil & Refining Company in the Buchanan pool, located three miles south of the Dale field, Caldwell County. Heretofore, no market has been available for this high gravity oil production. Magnolia Pipe Line Company also recently invaded the Judkins field, Ector County, with a six-inch line to perform common carrier service for the Cosden Oil Company.

Entrance of the Burford Company, which is operating a refinery at Pecos, Texas, into the Judkins field, with a four-inch extension line from its Winkler County pipe line unit was necessary to offset a steadily declining supply in the latter area. The company has been active in making contracts with independent companies in the Judkins field for crude runs over a long period, paying the usual West Texas gravity scale price.

Shell Pipe Line Company, with two 10-inch lines extending from the West Texas area is casting about for additional crude supplies to be available by mid-summer, and is slated to extend its West Texas system to the Judkins field, while an eight-inch line to the Hobbs field, New Mexico, rests on the initial performance of two tests scheduled to be completed late this month by the Shell Petroleum Corporation.

Increased production in the Van field has filled the crude requirements of refineries operated by the Pure Oil Company, Smiths Bluff, Texas; Louisiana Oil Refining Corporation, Shreveport; and Houston Oil Company, Camden, Arkansas. Tank car shipments are being made to these plants, pending the completion of the Pure-Van Pipe Line Company's ten-inch carrier from Van field to Smiths Bluff next July. Pure Oil Company has sustained a substantial decline in crude receipts from West Texas and Seminole field, Oklahoma, lately. This oil is gathered and delivered on a common carrier basis by Magnolia Pipe Line Company.

Wastes That Occur in Oil Fields

By S. F. SHAW
Engineer, Carter Oil Company

The accompanying article on oil field wastes is the second by S. F. Shaw, engineer, Carter Oil Company, in answer to previous articles by Harry Pennington on the subject of gas wastes. Mr. Shaw's first article was published in the February 7 issue of THE OIL WEEKLY, and was in answer to previous articles by Mr. Pennington published in THE OIL WEEKLY. The present article is in answer to Mr. Pennington's article, "Losses Occuring from Disregard of Gas Proportions at Seminole," which in turn was an answer to Mr. Shaw's first article.

Mr. Shaw has expressed a desire for other engineers to take part in the discussion, in order that several other points of view be recorded.

This and previous articles dealing with alleged gas wastes at Seminole and in other fields, is of no value other than that information so gained may be applied in the recovery of oil under similar circumstances in fields now under development, or to be opened in the future .

IN preceding articles that have been written by Mr. Harry Pennington and by the writer, there have been discussions of waste in Seminole and elsewhere. In the production of any natural resource there has always been waste in one form or another, and it remains to be seen whether waste will ever be completely eliminated. Certainly every effort should be made to do away with waste, provided, of course, the cost for doing so is not greater than the benefit to be obtained. In an oil field we may have several forms of waste, the principal ones being as follows:

1. Actual waste of the oil after being lifted to the surface.
2. Waste of oil by reason of being left underground with no means of winning it.
3. Waste of gas as a means for propelling oil to the well; this might, perhaps, be included in item No. 2.
4. Waste of the energy in the gas which could be employed in lifting the oil to the surface.
5. Waste of the gas as a fuel.
6. Waste of gasoline after it reaches the surface, in escaping with gas.
7. Waste of gasoline left in the oil which escapes in part while the oil is being transported to the refinery.
8. Waste of capital needlessly expended.
9. Waste of profit because of overproduction of oil.

We might extend this list into one of considerably greater length than that given above, the discussion of any one item of which could be made to occupy volumes.

I think it will be found that both Mr. Pennington and I have in mind the avoidance of waste, or at least the reduction of waste where it is possible to bring this about without too great a cost to the operator. It is unreasonable to expect the operator to avoid all waste where such practice results in a loss. No company could be founded on such a basis and no company could continue to exist for any lengthy period of time. The object of the writer is to discuss methods that are practical and that can be employed for avoiding waste; he is willing from the beginning to adopt the premise that no method has been, or ever will be, perfect, and that where logical proof cannot be given in defense of a given method, that opinion must be the governing argument, even though we are likely to go astray where we must be governed by opinion. A discussion of what are probably two different types of fields such as the field which Mr. Pennington has in mind, and the Seminole field, may serve to bring out facts, or may lead us to observe facts, that are of much importance both to these fields and to other types of fields.

A description of the salient points in connection with the development of the Seminole methods may be enlightening to the reader not familiar with operations in that field. The first production was discovered in March, 1926, in the "Hunton lime." The Wilcox sand was first opened to production in July, 1926, at a depth of 4069 feet. Production during the following periods was as follows:

1926	10,900,000	barrels.
1927	160,500,000	barrels.
1928	105,000,000	barrels.
1929	91,600,000	barrels.
	368,000,000	barrels.

Figures for production obtained from different sources do not check closely; the difference probably lies in the fact that some figures are based upon estimated production as given by the field; others are based upon 100 per cent production as compiled in the main offices; and others are based on the pipe line runs. The above figures of 368,000,000 barrels will serve, however, for the present discussion.

Up to the beginning of 1927, there was great uncertainty as to the character of the sand and the probable life of the field, and consequently gasoline and gas-lift plants were not built to handle the large quantity of gas escaping from the wells. It was found in the early life of the wells that wide open flow resulted in low gas-oil ratios, probably 600 cubic feet per barrel being a fair average. The initial rock pressure was probably about 1200 pounds per square inch, but the flowing pressure, or bottom-hole pressure, would not average 250 pounds per square inch. It was found that only a few wells would flow for more than a few days, and most of the wells did not flow at all . Strenuous efforts were made to start the wells producing by swabbing, agitating, pumping, etc. with very unsatisfactory results. It was found that many wells would not flow, but would swab from 200 to 1000 barrels per day, and would make from 3000 to 10,000 barrels per day when placed on the air-gas lift. Attempts to hold back pressures of 10 to 50 pounds on flowing wells would cause most of these wells to cease flowing. So-called back pressure control was found to serve no purpose in practically all cases where it was attempted. Even running a string of two-inch tubing, or a string of tools for cleaning or agitating would cause the well to cease flowing completely, and the well would not start flowing again when the tubing or tools were pulled out. The bottom-hole pressures were found to be very low. At the present time wells making 175 barrels per day are being flowed with bottom-hole pressure of 30 pounds; and one case is known of a well now being flowed on gas lift making 3000 barrels per day, which has a bottom-hole pressure of 113 pounds.

Mr. Pennington will probably be interested to know that wells with depths of 4000 to 4500 feet in Seminole, and with depths of 4000 to 5000 feet in Roumania are being produced by gas-lift with bottom-hole pressures that are less than those noted by the writer in article which appeared in *The* OIL WEEKLY *of* February 7, and I am satisfied that we shall have to produce wells at 6000 to 8000 feet under lower pressures than those noted in the example.

The case has been cited of a production amounting to more than 25,000,000 barrels

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where records were kept up to date that showed an average gas-oil ratio of 705 cubic feet per barrel. This was an average ratio, which would apply to the 46,000,000 barrels produced by the same company, because the wells were produced under conditions that would have shown the same gas-oil ratios had it been practicable to have obtained those ratios. Many ratios over considerable periods of time can be shown that were similar to the following ratios given in Table 1.

TABLE NO. 1

Cubic Feet Gas per Barrel

Month	Well No. 1	Well No. 2	Well No. 3	Well No. 4	Well No.5
January	624	...	...	...	311
February	531	...	...	198	430
March	604	...	...	87	120
April	519	...	601	107	111
May	543	...	552	60	128
June	499	...	726	246	247
July	579	155	723	536	441
August	601	463	771	540	847
September	608	454	564	884	628
October	575	457	245	876	293
November	514	566	492	784	292
December	518	486	277	917	201
Average	564	337	560	426	

Much Gas Lost In 1926

During the early months of 1926 large quantities of gas went into the air with no use being made of the gas for fuel, nor was the gasoline extracted; but this does not signify oil was not being recovered efficiently, or that lifting efficiency was low. The production of 11,000,000 barrels up to January, 1927, is a very small percentage of the 368,000,000 barrels that have been recovered up to January, 1930; and compared to the production of 46,000,000 barrels up to January, 1930 with an average gas-oil ratio of 705 cubic feet per barrel the production of 900,000 barrels up to January, 1927, by whatever method that could have been employed, is of little moment, especially when it be considered that the waste was of gas as a fuel, and the loss of some but not all of the gasoline by any means. There was no appreciable loss of the energy in the gas for moving the oil to the well or for lifting the oil, as compared with the methods adopted later.

Under pressure of 1200 pounds per square inch, Seminole crude has been shown to contain 350 cubic feet of gas per barrel of oil; the expansion of 350 cubic feet of gas to atmospheric pressure under conditions of isothermal expansion could perform 3,270,750 foot pounds of work. A pressure of 1200 pounds would mean a submergence of 2764.8 feet of water, or 3370 feet of oil of 0.82 specific gravity. With average depth of 4100 feet less 3370 feet, or 730 feet, the number of foot pounds of work required to lift one barrel of oil of 0.82 specific gravity 730 feet would be 209,916, under which conditions it would appear that all of the oil could be lifted if an efficiency of 6.4 per cent were obtained.

There is a fallacy in this method of reasoning, however. In the first place, the pressure of 1200 pounds would apply only to the first oil produced. Each barrel of oil and each cubic foot of gas produced would lower the pressure by some amount, however small, consequently the rock pressure is constantly diminishing. The oil is not produced through an infinite number of bore holes, but through holes spaced at certain arbitrarily selected distances, therefore, the oil must be moved through the sand by a means that is exceedingly wasteful of energy, and consequently will not reach the well at 1200 pounds per square inch.

In Seminole, the pressure at the bottom of the hole when flowing at the rate of 8000 barrels per day will not exceed 400 pounds, and when production has declined to 100 barrels per day the pressure at the bottom of the hole is only 20 to 50 pounds per square inch. The average bottom hole pressure in a producing well, covering the life of that well, is probably under 200 pounds in the Seminole field.

Now let us see how this affects the problem; the energy in the gas at 350 cubic feet per barrel under pressure of 200 pounds is 1,986,600 foot pounds; the submergence is 562 feet of oil, and the lift is 3538 feet, and the number of foot pounds required to lift a barrel of oil of 0.82 gravity is 1,240,777. The efficiency necessary to be obtained under these conditions to enable 350 cubic feet of gas contained in the oil to lift that barrel to the surface would be 105 per cent. This is impossible of attainment; under these conditions we could not expect greater than 15 to 25 per cent efficiency with the most efficient design of tapered tubing even though it were possible to introduce such a design in the casing. Efficiencies actually obtained for these conditions have ranged from 10 to 20 per cent, averaging probably 15 per cent. The deficiency in gas is made up from the gas-oil ratios being in excess of 350 cubic feet per barrel and by the introduction of extraneous gas employed in the gas lift.

Gas-Oil Ratio Not High

The gas-oil ratios were not high in the Seminole field even in the early stages of operation of the wells, and in the later stages the ratios are not nearly as high as in most other fields on which data are obtainable. Pressures have declined rapidly, and this is to be expected where large quantities of oil and gas are removed. The decline per unit of pressure has probably been accompanied by a greater production of oil than from any other field with similar thickness of sand, of which I have any data. There is no need to be alarmed over the ultimate recovery because of the decline in pressure in this field since the oil has already been largely recovered. We cannot maintain pressures and still produce large quantities of oil; such practices do not go together.

The question of waste involves that of gas as a fuel and that of gasoline. The size of the compressor plants in Seminole employed by the most efficient operators is determined by the quantity of gas from which gasoline is to be extracted, and not by the amount of gas required for lifting. The gas employed for lifting purposes is merely the residue gas from these gasoline plants, and these plants would have to be built in any event if the gasoline is to be recovered, whether the oil were lifted by pump, by swab, or whether flowed naturally. If they could be flowed naturally, any excess of gas over the amount that is required to be returned to the well for lifting the oil is pumped into the fuel lines. Oil produced in this manner has the light vapors removed, and therefore does not suffer much loss either in railroad tank cars or in pipe line transportation; in other words it is stabilized to a far greater degree than oil produced by any other method. The additional quantity of gas so obtained does require somewhat greater compressor capacity to handle it, to be sure, but the saving of this gas and gasoline is a measure that is in the interest of both conservation and profit. If the pipe-line companies were to make exhaustive tests on the losses that occur from oils produced by the various methods, they would probably become most ardent advocates of production by means of the gas lift.

Compressor Equipment Not Idle

It has been assumed that the compressor equipment installed in the Seminole field has been idle a large part of the time; nothing is farther from the facts. There have been times when, for a short period of time, a small proportion of the plant equipment has not been occupied, but it has been ascertained that this equipment can be moved from place to place in the field or to other fields and employed on other wells. The type of a certain portion of the equipment employed is such that transfer can be done quickly and at low cost. The other, more permanent type, of equipment is left in place as long as possible. It may be interesting to note that one company, at least, has had its original gasoline plants loaded to capacity from the beginning of the work in Seminole up to the present time, and additions have recently been made to that equipment. It has been found that even the small wells can now be operated more profitably, and in many cases at larger capacity, on intermittent flow by gas lift than on the beam, and this is serving to keep the gasoline equipment in use for a long time. Recently it has been found by various companies that they have moved equipment which they would now like to have had remain in its original site. Production of gasoline in the Seminole field has amounted to about 1,000,000 gallons or 25,000 barrels per day for a long time; it would be an enormous waste to allow this gasoline to escape, and this would most certainly take place without the present compressor equipment.

The question of lifting costs enters into the subject of producing oil to a large extent; oil lifted in Seminole by gas lift is shown to have credits amounting to nearly the total gas-lift charge, without mentioning the profits made by the gasoline plants in handling this work. This saving in costs is another reduction in waste.

There seems to be an impression that the Seminole field has gone to water because of the gas lift; encroachment of water has taken place in some cases, but

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usually not before an unusually large recovery of oil has been obtained.

Wells in Seminole probably cost from $75,000 to $85,000 to complete and to equip, and if we charge off the proportionate part of dry holes to successful completions, the producing wells will probably stand a capital expenditure of close to $100,000. If a profit is to be made on the venture, it is necessary to retire this capital outlay as early as possible, and the use of the gas-lift has shown that this purpose can be achieved. It is not difficult to see that production can be reduced to a point such that interest charges and capital cost could never be returned, however long the well might produce. Such a procedure would be a waste of capital.

Recover 26,000 Barrels Per Acre

Last, but not least, is the recovery of oil. One company in Seminole has had a recovery of 23,000 barrels of oil per acre. In addition to the recovery of crude oil there has been a recovery of crude gasoline amounting to about 5½ gallons per barrel of oil, which would increase the recovery to about 26,000 barrels per acre. If we can safely assume that the average productive thickness is 25 feet, porosity 22½ per cent, saturation 100 per cent, and drainage area 10 acres per well, the average recovery to date is already in the neighborhood of 60 per cent, and the present producing rate is such as to warrant a further expectation of from 10 to 20 per cent. The assumptions of the various figures may not be correct, but are taken as being reasonable, based on the present knowledge of the underground conditions.

There recently appeared a statement in National Petroleum News that there have been 2230 producing wells drilled in the Seminole area, including the St. Louis pool, to January 1, 1930. If we assume a recovery of 5½ gallons of crude gasoline per barrel of oil, the total recovery to date would be 416,000,000 barrels and the average recovery for the field as a whole would be almost 43 per cent. Methods employed in a field where such production and percentages of recovery have been obtained must have considerable merit at least for a field having these particular characteristics.

There must also be considered the method that has been supported by Mr. Pennington, that of holding high back pressures for the purpose of obtaining low gas-oil ratios. The method has certain points of merit, though these are outweighed, as I see it, by greater offsetting disadvantages.

In the first place, gas-oil ratios obtained under high back pressures are incorrect; they are too low, and therefore are misleading. If Mr. Pennington will carefully observe the tank battery into which the oil is being discharged, he will see large volumes of gas escaping which are not measured, thereby vitiating the correctness of the gas-oil ratios to that extent. The vapors so arising are laden with gasoline to greater extent than the gas separated from the oil in the trap. This escaping gas represents waste both as a fuel and as gasoline. Pipe line oil transported under these conditions is not stabilized, and therefore loses a part of its content en route to the refinery, which is a further loss. This escaping gas does not represent loss in recovery of crude oil, however, and even though it be a waste of gas it may not be profitable to install vapor-tight tanks and gasoline plants to recover this gasoline and gas.

Back Pressure Entails Loss

Oil produced under back pressure does represent a loss in energy so far as lifting is concerned; this is pointed out by Mr. Pennington. Gas at casing head pressure which discharges against a back pressure of 260 pounds represents a loss of nearly 73 per cent. The lifting efficiency of 10.7 per cent mentioned by Mr. Pennington as obtained under high casing pressure is obtained in an early stage of the productive history of the well, and is probably considerably higher than the average efficiency that will be obtained over the life of the well. The production of oil under high back pressure, in my opinion, is wasteful of energy, in that the amount of oil recovered will probably be lower per unit decline of pressure than if full advantage is taken of the decline in pressure. Mr. Pennington, and other petroleum engineers recognize the fact that there are two distinct operations in producing oil by natural flow, which are as follows:

1. Moving the oil through the sand to the well.
2. Lifting the oil through the producing string to the surface.

The second mentioned operation has nothing whatever in common with the first other than to take the oil, gas, and pressure, that is supplied at the bottom of the pipe and lift the oil to the surface, if the conditions are such that the gas lift can perform under these conditions. The conditions furnished by the flow into the well may be far from those required to obtain efficient lifting. If there be insufficient gas delivered from the sand to the well to l a barrel of oil to the surface, that must wait, so as to speak, until additional gas flows from the sand into the well assist in the operation. This means that other oil in the sand must be robbed its gas to lift this barrel of oil to the surface. I refer, of course, to wells having low gas-oil ratios, for these are the wells that are most likely to have a deficiency of gas. This will not apply to wells having an excess of gas present with the oil, such as are found in Oklahoma City. In wells with low gas content per barrel of oil, it would result in higher recovery if the gas lift were employed to make up the deficiency, allowing the gas dissolved in the oil to perform its maximum in moving oil to the well. We can lift the oil once it is delivered to the well, but we cannot restore the original condition of gas dissolved in the oil.

Gas-Oil Ratio Too Low

Gas-oil ratios cited by Mr. Pennington are very low; I think that if he will strike an average for the field, and include the gas that is not being measured, he will find that the average for the field in the case he has mentioned is probably nearer 900 or 1000 cubic feet per barrel, rather than 200 to 500 cubic feet per barrel. Let us suppose that this field has produced 2,200,000 barrels of oil from 63 wells, having a productive thickness of 25 feet, thus amounting to an average of 34,800 barrels per well or with 10-acre spacing, would be 3480 barrels per acre. At this rate it would require the next 13 years for these wells to yield the oil that has been produced from the wells that furnished the 46,000,000 barrels in the example cited for Seminole. Does Mr. Pennington believe that this can be achieved? If the sand thickness is greater than 25 feet the length of time would need to be correspondingly increased to equal the same performance.

The best-conceived attempt to maintain pressure on a large scale in a field, that is being done in the United States at the present time, is at Sugar Land, Texas, where excess gas is being injected into the sand at a pressure slightly above the rock pressure, which is somewhat over 1300 pounds per square inch. This project was described in the Petroleum Engineer recently, and the outcome will be awaited with a great deal of interest. If it be found successful in every respect, it may solve many of the problems found in the methods advocated respectively by Mr. Pennington and the writer.

A point that must not be overlooked is that of over production. The method proposed by Mr. Pennington can be made to serve the purpose better when proration must be employed. Producing at the potential capacity at the present time would completely demoralize the entire industry, and cannot be countenanced whether it involves waste of oil, of gas, of gasoline, or of energy in the gas. It appears to me, however, that it would be better at this time to unitize the new fields such that over-drilling can be stopped, and then make use of the methods of recovery that involve the least waste of gas, of energy, of ultimate recovery, and of capital.

QUESTIONS

1. What two oil fields have been developed according to the unit plan?
2. What ranking has petroleum among rail shipments of manufactured products, in the United States?
3. What are the two constituent elements of petroleum?
4. What was the world crude oil production in 1929 according to preliminary report by the Bureau of Mines?
5. What was spent in 1928 for drilling of oil and gas wells?
6. What is the gas-oil ratio of production?
7. What was the production of natural gas in 1928?
8. To what does the oil industry owe the commercial development of the seismograph?
9. What is the approximate number of wells completed since the discovery well was brought in by Colonel Drake in 1859?
10. What is the estimated number of miles of pipe lines in the United States?

For answers to these questions turn to page 78.

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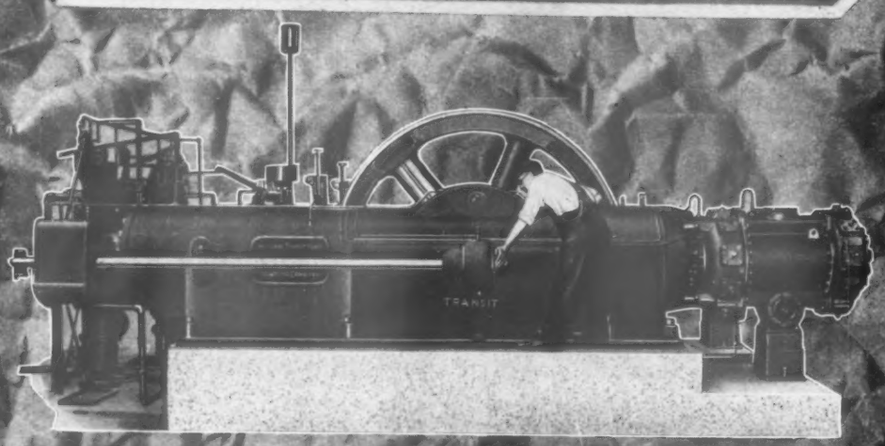

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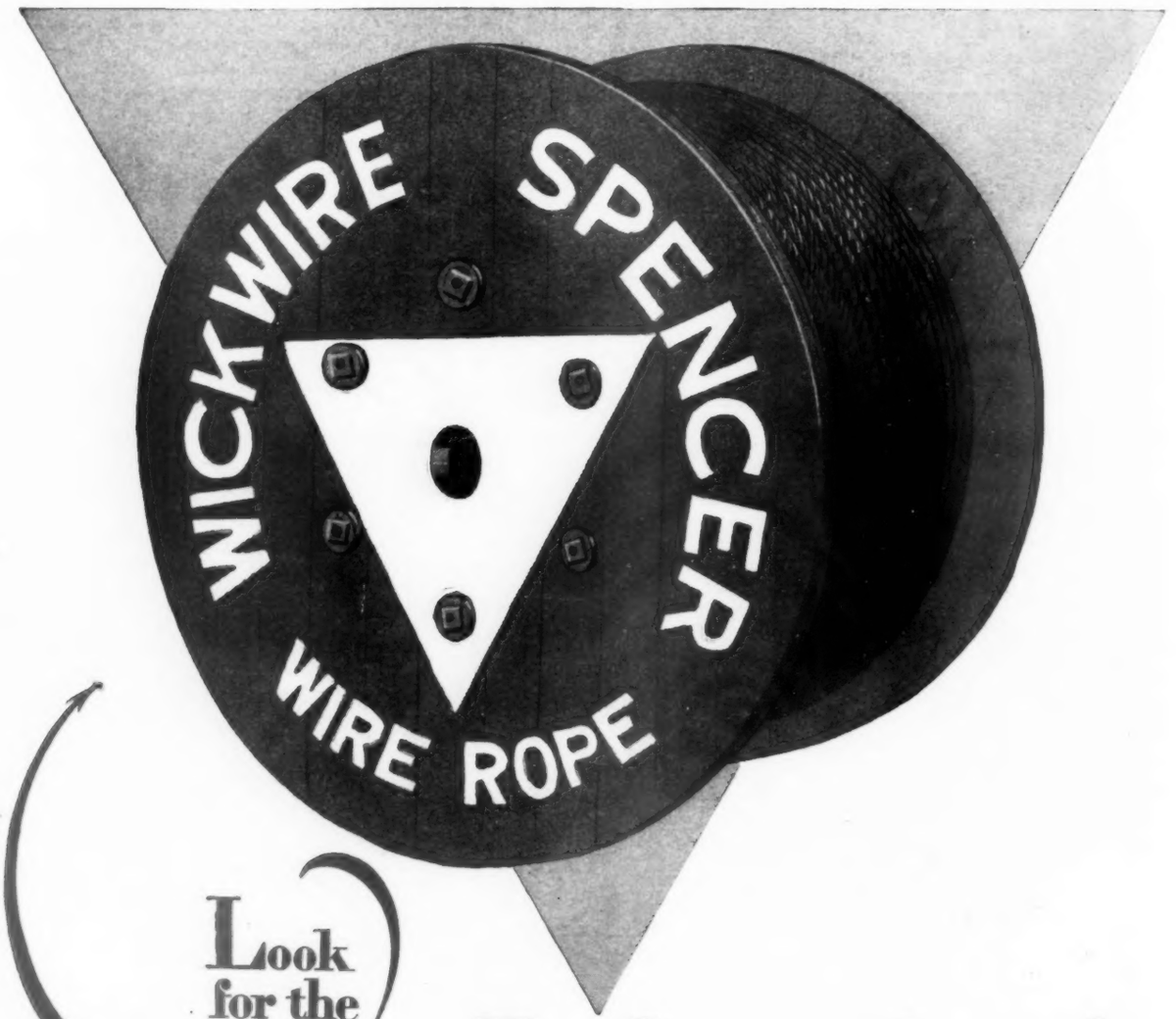

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Markets--Production--Crude Prices

H. J. STRUTH, *Staff Economist, Houston, Texas*

Demand Exceeds Production; Higher Crude Prices in Prospect

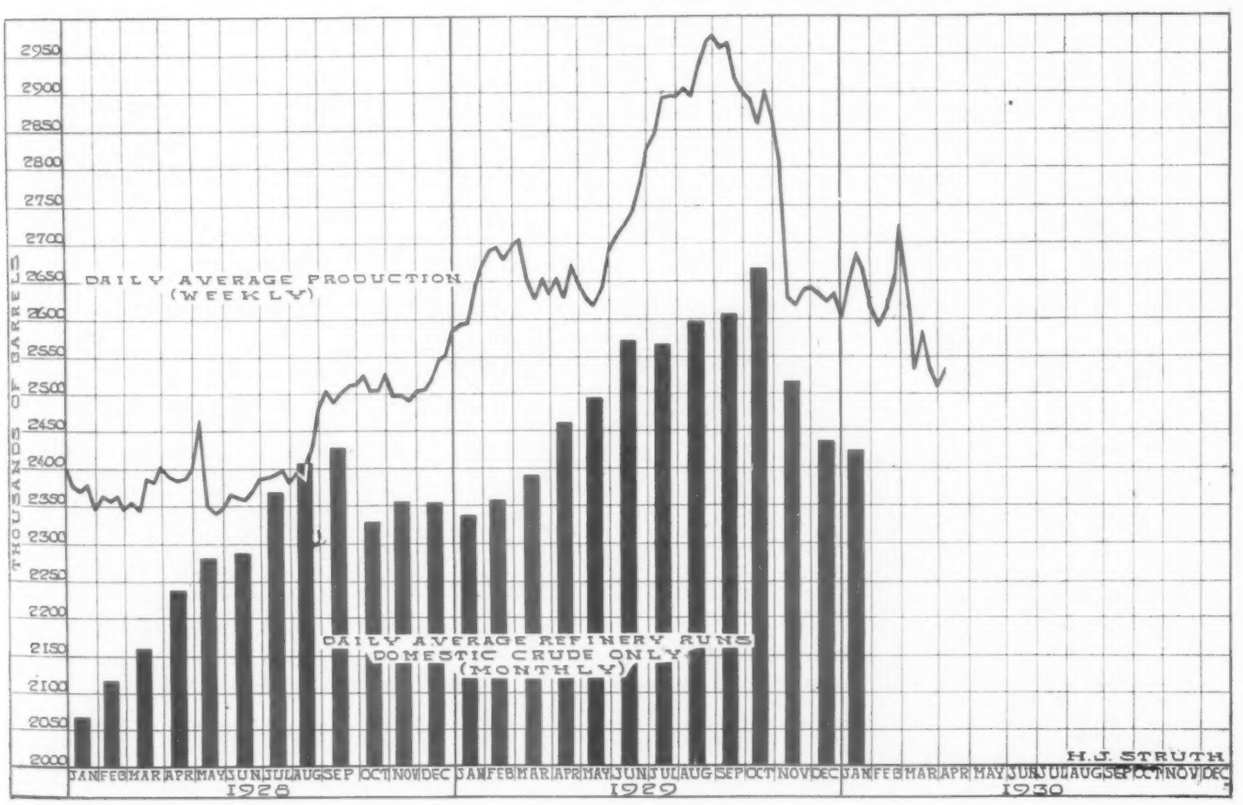
ALTHOUGH last week's daily average production showed a gain of 16,250 barrels, comparison of total daily production with actual current requirements reveals that demand exceeds output by about 75,000 barrels a day. Notwithstanding the fact that the industry's accumulated excess production will require continued proration activities in the major producing states, the situation has reached the stage where a boost in crude prices is a matter of immediate consideration. The move to a higher crude price level will undoubtedly be initiated in Oklahoma and should culminate in a general advance throughout the Mid-Continent area, Central West, Rocky Mountain and Eastern fields. In this connection, it is believed that higher prices will also be granted throughout Texas, despite the fact that the current supply is still greatly in excess of normal requirements.

A periodic gain in daily average production in the Oklahoma City field of 21,900 barrels proved to be the only temporarily disturbing factor in the producing situation last week, and this was not wholly unexpected. As a matter of fact, conditions in Oklahoma have improved to such an extent as to justify increasing the allowable output over the next three months to 681,493 barrels daily. It is therefore apparent that the increase in last week's production could not be considered as having an adverse influence upon the situation.

Production in Kansas continues somewhat excessive but is confined, mostly, within the new Voshel pool, where production continues to increase each week.

Viewed from an economic standpoint, the producing situation really exhibited further improvement last week, since the gain in Oklahoma could not be classed as excessive production and a further decline

DOMESTIC PRODUCTION AND REFINERY RUNS



HOW LAST WEEK'S DAILY AVERAGE PRODUCTION COMPARES WITH NECESSARY AND NORMAL QUOTA LIMIT

	Necessary Daily Average 2nd Quarter 1930	Quota Limit Prescribed to Correct Previous Excesses	Actual Daily Average Week Ending April 5, 1930	Excess
Arkansas	69,879	69,879	57,750	—12,129
California	669,791	602,566	620,700	18,134
Kansas	116,044	111,552	117,550	5,998
Louisiana	58,011	50,503	63,700	13,197
Oklahoma	684,274	681,493	635,600	—45,893
Texas	771,384	670,105	823,050	152,945
Balance of U. S.	235,945	235,945	212,100	—23,845
Total	2,605,328	2,422,043	2,530,450	108,407

of 10,400 barrels in California brought the situation in that state closer to the point of equilibrium.

While the production figures for Texas indicated an increase over the preceding week of 500 barrels daily, it was noted that Yates, Winkler County and Refugio registered fairly good declines. These were offset, however, by increases in Gray County, Barbers Hill, Humble and Pierce Junction. On the whole, conditions in Texas have shown practically little change, economically, although crude seems to be moving in fairly good demand from the various flush producing areas. Nevertheless, it must be acceded that production of the state must be lowered if the industry expects to sustain any immediate improvement in the price structure. Thus, even though crude prices are advanced at an early date, it will not mean that the economic situation has justified higher prices. Perhaps a moderate increase in prices of Texas crude will effect a greater realization of the need for further curtailment. At any rate, if Texas operators will heed the facts showing the need for a lower output a price advance will not only be sustained, but a further upward trend in market values will be justified when the growing demand begins to make inroads upon the above-ground supply.

Quarterly Production Table

It will be noted that the accompanying table presents data by states showing the new quarterly indicated necessary production. Ordinarily, the prospect for a larger demand would necessitate increasing the allowable output of the various producing states. However, the excesses accumulated during the first quarter of the year made it necessary to correct these figures in order to arrive at a production quota limit that would eliminate previous excess production and bring the quota down to a normal basis, consistent with the realization of equilibrium for the present full year.

These figures show that California must only curtail about 18,000 barrels more daily to place the state on a basis of absolute equilibrium for the first half of this year. If production there can be maintained at slightly above 600,000 barrels daily for the next three months, stocks will have been materially reduced and the season of peak demand will find the industry in a state of real prosperity.

As indicated by the table, Oklahoma has succeeded in reducing the daily output to a point where demand exceeds production by about 46,000 barrels daily.

Figures for Texas reveal a rather unsatisfactory situation, since the indicated necessary production figure for the second quarter has had to be reduced to a point somewhat below the normal rate for the first quarter. According to this, production in Texas must be reduced at least 150,000 barrels daily in order to reach a state of absolute equilibrium by the end of June. A record of the daily production in Texas for the first three months of this year shows that the average was 822,050 barrels, while the normal quota called for an average of 720,771 barrels. If production in Texas is reduced to the extent prescribed, it will be possible to increase the output of the state to about 800,000 barrels, beginning with July 1, provided that previous excesses have been successfully erased by that time. It is not difficult to see what this would mean for Texas operators, since immediate curtailment would make it possible to sustain higher prices throughout the period when production must be increased more than 100,000 barrels over the quota limit for the present quarter.

Production Changes

Following are the important changes recorded in the various fields, as reported by the American Petorleum Institute for the week ending April 5:

		Barrels
Gray County	Increase	1,500
Yates	Decrease	2,650
Winkler County	Decrease	1,250
Barbers Hill	Increase	1,050
Humble	Increase	1,200
Pierce Junction	Increase	1,650
Refugio	Decrease	3,850
Spindle Top	Decrease	1,050
Seminole	Decrease	1,650
Little River	Decrease	2,500
East Little River	Increase	4,150
Earlsboro	Decrease	3,050
East Earlsboro	Increase	3,700
St. Louis	Decrease	1,150
Mission	Decrease	2,400
Oklahoma City	Increase	21,900
Sasakwa	Increase	2,550
Santa Fe Springs	Decrease	6,500
Long Beach	Decrease	3,000
Huntington Beach	Decrease	1,300
Dominguez	Increase	1,000
Midway-Sunset	Decrease	2,000
Elwood	Increase	1,400
Voshel	Increase	3,850
Eastern States	Increase	3,100

CRUDE RUNS TO STILLS, GASOLINE AND GAS AND FUEL OIL STOCKS, WEEK ENDING MARCH 29, 1930

(Figures in barrels of 42 gallons)

District—	Potential Daily Capacity	Potential Capacity Reporting Total	Potential Capacity Reporting Per Cent	Crude Runs to Stills Total	Crude Runs to Stills Daily Average	Crude Runs to Stills Per Cent Operated	Gasoline Stocks	Gas & Fuel Oil Stocks
East Coast	605,700	605,700	100.0	3,120,800	445,800	73.6	9,550,000	6,314,000
Appalachian	128,100	116,600	91.0	643,900	92,000	78.9	1,865,000	668,000
Indiana, Illinois, Kentucky	375,000	373,000	99.5	2,295,100	327,900	87.9	8,479,000	3,056,000
Oklahoma, Kansas, Missouri	462,200	411,700	89.1	2,195,200	313,600	76.2	4,700,000	3,622,000
Texas	788,000	712,700	90.4	3,901,500	557,400	78.2	8,153,000	11,072,000
Louisiana-Arkansas	270,600	262,000	96.8	1,141,200	163,000	62.2	2,553,000	2,008,000
Rocky Mountain	148,900	139,300	93.6	384,500	54,900	39.4	3,049,000	1,059,000
California	897,400	891,400	99.3	3,753,300	536,200	60.2	16,390,000	108,387,000
Total Week March 29	3,675,900	3,512,400	95.6	17,435,500	2,490,800	70.9	54,739,000	136,186,000
Total Week March 22	3,660,900	3,497,400	95.5	17,744,400	2,534,900	72.5	53,830,000	137,253,000
The Texas and Louisiana Gulf Coastal Figures Shown Below are Included Above in the Totals of their Respective Districts.								
Texas Gulf Coast	526,500	523,500	99.4	2,963,900	423,400	80.9	7,076,000	8,490,000
Louisiana Gulf Coast	147,500	147,500	100.0	751,700	107,400	72.8	2,207,000	1,174,000

FIELD STATISTICS OF IMPORTANT DISTRICTS

Pool—	Oil Wells Completed	Total Initial Production	Initial Per Well	Number Producing Wells	Daily Production Barrels	Daily Prod. Per Well	Rigs Up	Wells Drilling
WEST TEXAS:								
Hendrick	621	3,117,155	5,028	564	85,790	152[1]	..	2
Church & Fields	217	215,920	994	209	22,960	110	..	2
Gulf-McElroy	86	62,365	725	84	14,215	169[1]	1	1
Yates	378	2,509,135	6,638	365	113,305	310[1]	3	8
TEXAS PANHANDLE:								
Gray County	567	410,710	724	542	57,945	107[1]	16	56
CALIFORNIA:								
Santa Fe Springs[2]	582	1,632,800	2,805	270	116,000	429	8	66

[1]Production partially pinched.
[2]Includes deep zone production only. For field total add 70 wells and 9000 barrels.

Runs to Stills

Runs to stills at refineries for the week ending April 5, averaged 2,489,300 barrels daily. This was practically the same as was reported for the week ending March 29, but represents a decline of 44,000 barrels daily from the rate recorded for the week ending March 22.

Stocks of gasoline for the week ending April 5 aggregated 53,808,000 barrels, a decline of 931,000 barrels under the total on hand March 29. However, when compared with the total on hand on March 22, the decline only amounts to 22,000 barrels, since stocks reported March 29 revealed a substantial increase.

The larger demand experienced by refiners for gasoline has temporarily disrupted any plans for curtailment of refinery still runs. As in the case of the producer, the refiner measures his output by current demand and seems to have forgotten the fact that he has accumulated a large surplus by overproducing during the period of slackened demand. There is room for further improvement in the general refining situation, but it looks as though the race to produce as much gasoline as possible is on, in earnest. Refiners are cautioned to consider the predicament they encountered last summer, when prices crumbled at the height of the gasoline consuming season. Heeding the danger signals now will prevent another period of weakness in market values this summer. One thing in the refinery situation that favors the producer is the lower rate of demand for foreign crude. While this may be only temporary, it is at least creating an additional outlet for domestic oil.

California production has dropped to around 600,000 barrels, with still further cuts probable, this rapid reduction having exceeded the most optimistic estimates of two months ago. The gas conservation law and the curtailment program have proven to be a powerful combination for reducing the output and bringing production in line with consumption. Thus within six weeks the state total has been reduced a full 100,000 barrels, with a drop of twice this figure during the past six months.

Fear Light Crude Shortage

There is a fear in some quarters that strict enforcement of the gas conservation law will cause a shortage of light crude, but with bulging stocks of this grade of oil such should not be the case. There is a possibility, however, that small refiners will face a shortage, since they depend upon current production for their supply of crude. Some of the independents believe they will be placed at a distinct disadvantage should production drop below actual demands.

Rumors of still higher crude prices persist, but major purchasers have nothing definite to say on this subject. Higher prices would stabilize gasoline prices but it is feared that a too rapid recovery might be reflected later in an unfavorable reaction. Crude in storage is controlled chiefly by the larger refiners and higher prices might work a hardship on independents with little storage.

Production at Santa Fe Springs has dropped to about 125,000 barrels, as

IMPORTS OF PETROLEUM AT PRINCIPAL UNITED STATES PORTS
(Barrels of 42 gallons)

	Week Ended March 29		Week Ended March 22
AT ATLANTIC COAST PORTS—			
Baltimore	358,000		115,000
Boston	.....		.....
New York	987,000	"A"	852,000
Philadelphia	251,000		95,000
Others	143,000		249,000
Total	1,739,000		1,311,000
Daily Average	248,429		187,286
AT GULF COAST PORTS—			
Galveston District	64,000		.....
New Orleans and Baton Rouge	88,000		15,000
Port Arthur and Sabine District	.....		.....
Tampa	.....		40,000
Total	152,000		55,000
Daily Average	21,714		7,857
AT ALL UNITED STATES PORTS—			
Total	1,891,000		1,366,000
Daily Average	270,143		195,143
Daily Average Four Weeks Ended	255,607		262,536
DISTRIBUTION OF TOTAL IMPORTS IS AS FOLLOWS:			
Crude	1,229,000	"A"	824,000
Gasoline	401,000		32,000
Gas Oil	44,000		.....
Fuel Oil	217,000		510,000
Total	1,891,000		1,366,000

"A"—Revised.

CALIFORNIA OIL RECEIPTS AT ATLANTIC AND GULF COAST PORTS
(Barrels of 42 gallons)

	March 29 Week Ended	March 22 Week Ended
AT ATLANTIC COAST PORTS—		
Baltimore	146,000	15,000
Boston	95,000	.....
New York	100,000	356,000
Philadelphia	.....	66,000
Others	118,000	74,000
Total	459,000	511,000
Daily Average	65,571	73,000
AT GULF COAST PORTS—		
Total	.....	.....
Daily Average	.....	.....
AT ATLANTIC AND GULF COAST PORTS—		
Total	459,000	511,000
Daily Average	65,571	73,000
Daily Average Four Weeks Ended	66,321	56,179
Distribution of Total California Oil Receipts Is As Follows:		
Gasoline	439,000	360,000
Gas Oil	.....	62,000
Fuel Oil	.....	74,000
Kerosene Distillate	20,000	15,000
Total	459,000	511,000

Weekly Comparisons of New Wells

	Week ending April 5	Previous week	This week 1929	Total this month	This month 1929	Total this year	Total this date last year	1929 year Total
Arkansas	4	2	9	4	9	33	46	159
California	15	11	23	15	23	199	390	1,231
Louisiana	24	19	22	24	22	287	210	903
Kansas	16	19	14	16	14	244	244	1,079
Oklahoma	74	71	40	74	40	757	791	3,578
Texas	157	214	184	157	184	2,117	2,111	8,697
Total	290	336	292	290	292	3,737	3,792	15,647

against a new potential of 208,921 barrels. Long Beach is below 100,000 barrels for the first time since late in 1927. Other large fields are either within their allowables or are within striking distance of the correct figures. Settled fields of the state are producing less than their allowable total. Latest estimate of the state's potential is 1,081,382 barrels and the allowable 603,289 barrels. The average cut from the potential is 44.3 per cent.

The demand for gasoline has been slightly below the expected figure, with the Atlantic seaboard requiring less than anticipated. Shipments are still heavy through the Panama Canal but the total for 1930 may not exceed that of 1929. Export cargoes are moving at about six cents, the domestic situation, especially in California causing a slightly weaker tendency. There has been no change in the miniature gasoline price war in Southern California, gasoline retailing at all leading stations at 16½ cents. Many stations are selling gasoline at as little as 13½ cents. Leading refiners have unofficially reduced the tank wagon price three cents, which is the equivalent of a full-fledged reduction. A surplus of gasoline has been responsible for the drop in prices.

Seagraves Reviews Gas Merger Advantages

Houston. — Advantages accruing to stockholders of United Gas Company through the recent merger of its natural gas properties with those of Electric Bond and Share, are pointed out in a letter by O. R. Seagraves, president of United Gas Company. The letter also contained the board of directors' approval of the merger, and the report of earnings for 1929.

According to the letter, exchange of securities is advantageous to stockholders of the company since it not only simplifies the financial structure and materially improves the credit position, but it also gives stockholders an opportunity to participate in the continuous development of the natural gas resources of an enlarged super-gas system.

The new corporation will supply nearly all the natural gas requirements of New Orleans; will supply approximately 40 per cent of those of the St. Louis line; about 42 per cent of the output of the line to Birmingham and Atlanta will be served; and about 34 per cent of that to Memphis. The new corporation will furnish, as part of the gas sales in these and other cities, about 24 per cent of the gas output during 1930 to steam electric generating stations at New Orleans, Memphis, Dallas, Fort Worth, Beaumont, Houston, San Antonio and Laredo.

Moody-Seagraves and G. E. Barrett and Company interests will continue to be interested in the new corporation.

Earnings of the company during 1929 after deducting all interest charges and preferred dividends, were $3,785,877 less depreciation, depletion, and federal taxes. These earnings do not include those from the company's equity in Consolidated Gas Utilities Company, nor those from a 20 per cent interest in the Mississippi Fuel Corporation, nor from the company's wholly-owned line to Monterrey, Mexico, which was placed in commission last December.

Total length of pipe operated by United Gas Company and controlled concerns, was increased 22 per cent to 3240 miles during the year; natural gas reserves were increased 15.5 per cent, the company as of December 31, 1929 owning leases and long term gas purchase contracts on 543,000 acres, including 430 producing gas wells.

Summarized Review of Field Results

State—	Completions This week	Completions Last week	Oil Wells This week	Oil Wells Last week	Gas Wells This week	Gas Wells Last week	Failures This week	Failures Last week	Initial Prod. This week	Initial Prod. Last week
Arkansas	2	2	1	1	..	..	1	1	15	4
California	24	25	24	22	..	..	..	3	17,035	6,625
Illinois	4	5	3	3	..	..	1	2	55	43
Indiana	8	1	5	..	3	..	..	1	391	..
Kansas	23	30	8	16	2	1	13	13	4,865	5,915
Kentucky	30	21	20	17	3	..	7	4	1,575	648
Louisiana	15	21	4	12	6	2	5	7	207	6,472
Michigan	6	..	5	..	..	..	1	..	825	..
Mississippi	1	..	..	..	..	..	1	..	..	..
New York	6	11	6	..	..	..	..	..	12	30
Ohio	56	30	29	13	15	12	12	5	668	598
Oklahoma	68	81	38	59	5	5	25	17	64,417	211,142
Pennsylvania	52	80	48	74	1	3	3	3	224	237
Texas	132	138	75	78	6	9	51	51	26,294	94,108
West Virginia	24	12	7	5	12	3	5	4	213	37
Total	451	457	273	311	53	35	125	111	116,796	324,859
Increase this week	..	..	..	..	18	..	14	..	..	..
Decrease this week	6	..	38	..	..	..	..	..	208,063	..

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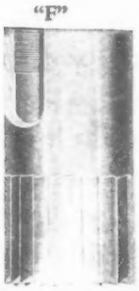

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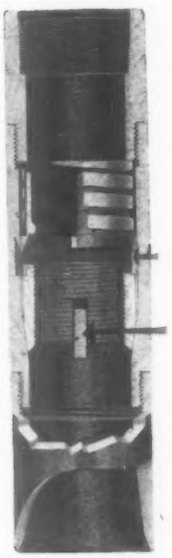

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American Adjustable Steel Rig Braces
American Fish Tail Bits
American Pipe Rackers

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In these days of keen competition with so many different engines and so many different motoring conditions why not let your customers choose their fuel from three different types and let each one get the kind of gasoline that is *just right for his own car and his style of driving?* Here is Sinclair Aircraft Gasoline, the *Ace* of high test gasolines, to give quick start and lightning getaway – brilliant, flashy performance in traffic or in the open. It gets away like a rocket! Sinclair Aircraft is the Ace of high test gasolines because it is specially manufactured at Sinclair Refineries, meeting the requirements of the Federal Specifications Board for Aviation Gasoline – domestic grade – and gives sustained power. Due to its careful fractionation it is free from dissolved gases which cause gas locks, uneven distribution, galloping and engine balk . . . Sinclair H-C Gasoline delivers high compression performance and stops knocks, even on a tough hill. It's *all* gasoline – nothing added. And if a motorist prefers to pay three cents less per gallon – Sinclair Regular Gasoline has economy and mileage, with plenty of eager power. The quality gasoline at a popular price! Why not be the dealer in your community to offer motorists this progressive gasoline service?

SINCLAIR REFINING COMPANY, INC., 45 Nassau St., New York – *Atlanta, Chicago. Houston, Kansas City*

CRUDE OIL PRICE QUOTATIONS

(Revised to April 1, 1930)

EASTERN STATES

(Effective Feb. 17, 1930)

Penna Grade Oil in New York Transit Lines (New York)	$2.80
Bradford District Oil in National Transit Lines (Pennsylvania)	2.80
Penn Grade Oil in National Transit Lines (Pennsylvania)	2.80
Penn Grade Oil in Southwest Pennsylvania Lines (Penna.)	2.75
Penn Grade Oil in Eureka Pipe Line Lines (West Virginia)	2.65
Penna Grade Oil in Buckeye Pipe Line Lines (Ohio)	2.45
Cabell Grade Oil in Eureka Pipe Line Lines (West Virginia)	1.75
Corning 35-cent Grade Oil in Buckeye Pipe Line Co.'s Lines	1.55
Corning 25-cent Grade Oil in Buckeye Pipe Line Co.'s lines	1.65
Somerset Oil in Cumberland Pipe Line lines (Kentucky)	1.37
Ragland Grade Oil in Cumberland Pipe Line lines (Kentucky) (Effective Jan. 29, 1929)	.60
Wayne Dist. Oil in Cumberland Pipe Lines	1.24

CENTRAL STATES

(Effective February 15, 1930)
Posted by Ohio Oil Co.

Illinois	$1.60
Indiana	1.42
Lima	1.65
Plymouth	1.18
Princeton	1.60
Wooster	1.75

WESTERN KENTUCKY

All grades	$1.50

OKLAHOMA-KANSAS

(Effective February 15, 1930)*

Below 25 gravity	$ .60
25 to 25.9 gravity	.66
26 to 26.9 gravity	.72
27 to 27.9 gravity	.78
28 to 28.9 gravity	.84
29 to 29.9 gravity	.90
30 to 30.9 gravity	.96
31 to 31.9 gravity	1.02
32 to 32.9 gravity	1.08
33 to 33.9 gravity	1.11
34 to 34.9 gravity	1.14
35 to 35.9 gravity	1.17
36 to 36.9 gravity	1.20
37 to 37.9 gravity	1.23
38 to 38.9 gravity	1.26
39 to 39.9 gravity	1.29
40 to 40.9 gravity	1.32
41 to 41.9 gravity	1.35
42 to 42.9 gravity	1.38
43 to 43.9 gravity	1.41
44 and above	1.44

*This schedule was adopted initially by Carter Oil Company on January 15, and became general when Prairie Oil & Gas Company adopted it on February 15.

PANHANDLE

(Effective January 15, 1930)

GRAY COUNTY

Below 29 gravity	$ .69
29 to 29.9 gravity	.75
30 to 30.9 gravity	.81
31 to 31.9 gravity	.87
32 to 32.9 gravity	.93
33 to 33.9 gravity	.96
34 to 34.9 gravity	.99
35 to 35.9 gravity	1.02
36 to 36.9 gravity	1.05
37 to 37.9 gravity	1.08
38 to 38.9 gravity	1.11
39 to 39.9 gravity	1.14
40 to 40.9 gravity	1.17
41 to 41.9 gravity	1.20
42 to 42.9 gravity	1.23
43 to 43.9 gravity	1.26
44 and above	1.29

WHEELER COUNTY

Below 30 gravity	$ .70
30 to 30.9 gravity	.76
31 to 31.9 gravity	.82
32 to 32.9 gravity	.88
33 to 33.9 gravity	.91
34 to 34.9 gravity	.94
35 to 35.9 gravity	.97
36 to 36.9 gravity	1.00
37 to 37.9 gravity	1.03
38 to 38.9 gravity	1.06
39 to 39.9 gravity	1.09
40 to 40.9 gravity	1.12
41 to 41.9 gravity	1.15
42 to 42.9 gravity	1.18
43 to 43.9 gravity	1.21
44 and above	1.24

CARSON-HUTCHINSON COUNTIES

Below 32 gravity	$ .72
32 to 32.9 gravity	.78
33 to 33.9 gravity	.81
34 to 34.9 gravity	.84
35 to 35.9 gravity	.87
36 to 36.9 gravity	.90
37 to 37.9 gravity	.93
38 to 38.9 gravity	.96
39 to 39.9 gravity	.99
40 to 40.9 gravity	1.02
41 to 41.9 gravity	1.05
42 to 42.9 gravity	1.08
43 to 43.9 gravity	1.11
44 and above	1.14

SOMERSET

Below 33 gravity	$1.05
33 to 33.9 gravity	1.07
34 to 34.9 gravity	1.09
35 to 35.9 gravity	1.11
36 to 36.9 gravity	1.13
37 to 37.9 gravity	1.15
38 and above	1.17

CALIFORNIA CRUDE OIL PRICES AT THE WELL

(EFFECTIVE MARCH 11, 1930)

Following are the current prices offered by Standard Oil Company for crude oil at the wells: (Price per barrel of 42 gallons in fields indicated)

Gravity	Ventura*	Signal Hill	Alamitos Heights Seal Beach	Huntington Beach	Inglewood	Olinda-Brea Canon	Athens-Rosecrans Dominguez	Elwood Terrace	Torrance	Richfield	Whittier La Habra	Montebello	Coyte Hills	Santa Fe Springs	Newhall McKittrick Kern River	Midway-Sunset Elk Hills	Buena Vista Hills	Lost Hills	Coalinga	Wheeler Ridge
14-14.9	$ .70	$ .70	$ .70	$ .70	$ .70	$ .70	$ ..	$ ..	$ .70	$ .70	$ .70	$ .70	$ .70	..	$ .55	$ .55	$ .55	$ .55	$ .55	$ .55
15-15.9	.70	.70	.70	.70	.70	.70	..	..	.70	.70	.70	.70	.70	..	.55	.55	.55	.55	.55	.55
16-16.9	.70	.70	.70	.70	.70	.70	..	..	.70	.70	.70	.70	.70	..	.55	.55	.55	.55	.55	.55
17-17.9	.70	.70	.70	.70	.70	.70	..	..	.70	.70	.70	.70	.70	..	.55	.55	.55	.55	.55	.55
18-18.9	.75	.76	.76	.76	.76	.76	..	..	.76	.76	.76	.71	.76	..	.55	.62	.62	.62	.62	.62
19-19.9	.80	.82	.82	.82	.82	.82	..	..	.82	.82	.82	.77	.82	..	.55	.70	.70	.70	.70	.70
20-20.9	.85	.88	.88	.88	.88	.88	..	..	.88	.88	.87	.83	.87	..	..	.78	.78	.78	.78	.78
21-21.9	.90	.94	.94	.94	.94	.94	..	..	.94	.94	.93	.90	.93	.92	..	.86	.86	.86	.86	.86
22-22.9	.97	1.00	1.00	1.00	1.00	1.00	..	..	1.00	1.00	.98	.97	.98	.95	..	.94	.94	.94	.94	.94
23-23.9	1.05	1.07	1.07	1.07	1.07	1.07	..	..	1.07	1.07	..	1.05	1.04	1.01	..	1.02	1.02	1.02	1.02	1.02
24-24.9	1.08	1.14	1.14	1.14	1.14	1.14	1.14	..	1.14	1.14	..	1.11	1.10	1.07	..	1.09	1.09	1.09	1.07	1.07
25-25.9	1.13	1.21	1.21	1.21	1.21	1.21	1.19	..	1.21	1.21	..	1.17	1.16	1.13	..	1.16	1.16	1.16	1.12	1.12
26-26.9	1.18	1.28	1.28	1.28	1.28	1.28	1.24	..	1.28	1.28	..	1.23	1.23	1.19	..	1.23	1.23	1.23	1.17	1.17
27-27.9	1.23	1.35	1.35	1.35	1.35	1.35	1.29	..	1.35	1.35	..	1.29	1.30	1.25	..	1.30	1.30	1.30	1.23	1.22
28-28.9	1.28	1.42	1.42	1.42	1.42	1.42	1.34	..	1.42	1.42	..	1.35	1.37	1.31	..	1.35	1.35	1.35	1.27	..
29-29.9	1.33	1.46	1.46	1.46	..	1.46	1.39	..	..	1.46	..	1.38	1.41	1.37	..	1.41	1.41	1.41	1.31	..
30-30.9	1.39	1.50	1.50	1.50	..	1.50	1.45	..	..	1.50	..	1.41	1.45	1.43	..	1.47	1.47	1.47	1.35	..
31-31.9	1.45	1.55	1.55	1.55	..	1.55	1.51	..	..	..	..	..	..	1.49	..	1.53	1.53	1.53	1.39	..
32-32.9	1.51	1.60	1.60	1.60	..	..	1.57	..	..	..	..	..	..	1.55	..	1.59	1.59	1.59	1.43	..
33-33.9	1.58	..	..	..	..	..	1.64	..	..	..	..	..	..	1.60	..	1.65	1.65	1.65	1.47	..
34-34.9	..	..	..	..	..	..	1.71	1.32	..	..	..	..	..	1.65	..	..	..	1.71	1.51	..
35-35.9	..	..	..	..	..	..	1.78	1.39	..	..	..	..	..	1.70	..	..	..	1.77	1.55	..
36-36.9	..	..	..	..	..	..	1.84	1.46	..	..	..	..	..	1.75	..	..	..	..	..	..
37-37.9	..	..	..	..	..	..	1.90	1.53	..	..	..	..	..	1.80	..	..	..	..	..	..
38-38.9	..	..	..	..	..	..	1.96	1.60	..	..	..	..	..	1.85	..	..	..	..	..	..
39-39.9	..	..	..	..	..	..	2.02	1.66	..	..	..	..	..	1.90	..	..	..	..	..	..
40-40.9	..	..	..	..	..	..	2.08	1.72	..											
41-41.9	..	..	..	..	..	..	2.14	1.78	..											
42-42.9	..	..	..	..	..	..	2.20	1.84	..											

KETTLEMAN HILLS—55 degrees Gravity and above $1.65 per barrel. *Union Oil Company.

General Petroleum Posts following prices 11-13.9 Gr. 50c, 14-22.9 55c at Kern Front, Fruitvale, Mt. Poso Creek and Rd. Mountain districts.

(See Page 47)

Why WOULDN'T YOUR PIPE *threads be* DAMAGED...

Shipping, handling and warehousing are an inevitable part of quality pipe manufacture. Every length must run the gamut of careless loading crews, the rough jostle of rumbling trucks not to speak of hundreds of miles of railroad travel—DAMAGED THREADS AND DIRTY COUPLINGS ARE THE INEVITABLE RESULT.

But with the quick availability of Colona Pipe Thread Protectors to all pipe manufacturers, EXPOSED THREADS HAVE BECOME STRICTLY TABOO among careful, progressive pipe manufacturers today.

In fact, wherever you see Colona Pipe Thread Protectors on any make of pipe, you see the most conclusive evidence of good, well made pipe. Colona Protectors protray the manufacturer's pride in his product—Only Colona Protectors give 100 percent protection to both ends and threads.

Colona Protected Pipe deserves your patronage at all times.

PITTSBURGH SCREW & BOLT CORPORATION
Colona Division · Pittsburgh, Pa.

PIPE THREAD
COLONA
PROTECTORS

CRUDE OIL PRICE QUOTATIONS (*Continued from Page 45*)

WEST TEXAS
(Effective Jan. 15, 1930)

Crane-Upton, Crockett, Ector, Howard, Pecos and Winkler Counties and Lea County, N. Mex.

Below 25 gravity	$ .55
25 to 25.9 gravity	.58
26 to 26.9 gravity	.61
27 to 27.9 gravity	.64
28 to 28.9 gravity	.67
29 to 29.9 gravity	.70
30 to 30.9 gravity	.73
31 to 31.9 gravity	.76
32 to 32.9 gravity	.79
33 to 33.9 gravity	.82
34 to 34.9 gravity	.85
35 to 35.9 gravity	.88
36 and above	.91

Magnolia posts in Crane, Upton and Winkler Counties. Southern Crude Oil Purchasing Company posts only in Crane, Upton and Winkler Counties.

HOWARD AND GLASSCOCK COUNTY CRUDE
(Effective Jan. 15, 1930)

Below 25 gravity	$ .55
25 to 25.9 gravity	.58
26 to 26.9 gravity	.61
27 to 27.9 gravity	.64
28 to 28.9 gravity	.66
29 to 29.9 gravity	.68
30 to 30.9 gravity	.70
31 to 31.9 gravity	.72
32 to 32.9 gravity	.74
33 to 33.9 gravity	.76
34 to 34.9 gravity	.78
35 to 35.9 gravity	.80
36 and above	.82

MARKHAM
The Texas Company
(Effective Jan. 15, 1930)

All grades	$ .75

CORSICANA HEAVY AND LULING

All grades	$ .75

SALT FLAT AND DARST CREEK

All grades	$1.05

NORTH AND CENTRAL TEXAS
(Effective Jan. 15, 1930)

Ranger, North Texas, Mexia, Powell, Richland, Wortham, Currie, Moran, Nocona and Lytton Springs Crude

(Humble Oil and Refining Company)

Below 25 gravity	$ .60
25 to 25.9 gravity	.66
26 to 26.9 gravity	.72
27 to 27.9 gravity	.78
28 to 28.9 gravity	.84
29 to 29.9 gravity	.90
30 to 30.9 gravity	.96
31 to 31.9 gravity	1.02
32 to 32.9 gravity	1.08
33 to 33.9 gravity	1.11
34 to 34.9 gravity	1.14
35 to 35.9 gravity	1.17
36 to 36.9 gravity	1.20
37 to 37.9 gravity	1.23
38 to 38.9 gravity	1.26
39 to 39.9 gravity	1.29
40 to 40.9 gravity	1.32
41 to 41.9 gravity	1.35
42 to 42.9 gravity	1.38
43 to 43.9 gravity	1.41
44 and above	1.44

SOUTH TEXAS

Mirando	$ .75

GULF COAST
(Effective April 1, 1930)

Grade "A" all companies	$1.05

Grade "B"

Below 25 gravity	$ .90
25 to 25.9 gravity	.93
26 to 26.9 gravity	.96
27 to 27.9 gravity	.99
28 to 28.9 gravity	1.02
29 to 29.9 gravity	1.05
30 to 30.9 gravity	1.08
31 to 31.9 gravity	1.11
32 to 32.9 gravity	1.14
33 to 33.9 gravity	1.17
34 to 34.9 gravity	1.20
35 to 35.9 gravity	1.23
36 to 36.9 gravity	1.26
37 to 37.9 gravity	1.29
38 to 38.9 gravity	1.32
39 to 39.9 gravity	1.34
40 to 40.9 gravity	1.36
41 to 41.9 gravity	1.38
42 to 42.9 gravity	1.40
43 to 43.9 gravity	1.42
44 and above	1.44

CLASSIFICATIONS OF GULF COAST CRUDE

The Texas Company: GRADE A—Beaume gravity not over 26.0 degrees at 60 degrees Fahrenheit; sulphur not over 0.5 per cent; in distilling 500 cc. of the crude that part of the distillate cut between 65 per cent off and 85 per cent off shall have a pour test of zero or lower. GRADE B—All Gulf Coast heavy crudes which do not meet tests for Grade "A" or for Gulf Coast light.

Humble Oil & Refining Company: GRADE A—All crude conforming to the following tests: viscosity not less than 100 seconds Saybolt at 100 degrees Fahrenheit; sulphur not over .4 per cent; Beaume gravity not over 25 at 60 degrees Fahrenheit. Cold tests of distillates having a viscosity of 1000 seconds at 100 degrees Fahrenheit shall not be over 5 degrees Fahrenheit. GRADE B—Embraces all Coastal crude which does not meet the tests for "A" grade crude.

Gulf Pipe Line Company: GRADE A—Beaume gravity not over 24 at 60 degrees Fahrenheit; viscosity not less than 100 seconds universal Saybolt at 100 degrees Fahrenheit; and sulphur not over 0.4 per cent. The yield of 250 viscosity reduced distillate at 100 degrees Fahrenheit not less than 30 per cent, and this 30 per cent not heavier than 20 Beaume, and its pour test not above zero Fahrenheit. The reduced distillate to be secured by reducing the crude with fire and steam until the bottoms have a flash of not less than 540 degrees Fahrenheit, and not more than 560 degrees Fahrenheit open cup, and the entire distillate obtained in this way reduced to a distillate of 250 viscosity. The 10 per cent cut in the original distillate having an average viscosity of 500 seconds at 100 degrees Fahrenheit to have a pour test not higher than 5 degrees Fahrenheit. GRADE B—Embraces crude which does not meet test for "A" grade.

Sun Pipe Line Company: GRADE A—Viscosity not less than 100 seconds at 100 degrees Fahrenheit Saybolt. Sulphur not over .4 per cent. Beaume gravity not over 25 at 60 degrees Fahrenheit. Cold Test: of distillates having viscosity of 1000 seconds at 100 degrees Fahrenheit shall not be over 5 degrees Fahrenheit A. S. T. M. Method. GRADE B—All Coastal crudes which do not meet specifications for Grade A crude.

REFUGIO
(Effective April 1, 1930)

Below 25 gravity (Heavy)	.75

REFUGIO (Light)

Same as Gulf Coast 25 gravity and above.

PETTUS
(Effective April 1, 1930)

All Grades	$1.30

BRENHAM
(Effective March 1, 1930)

All grades	.95

STATE CRUDE PRODUCTION TAXES

Oklahoma—Three per cent of gross value, less royalty interest.

Texas—Two per cent of gross value.

Louisiana—From four to 11 cents a barrel, depending upon gravity.

Arkansas—2.6 per cent of gross market value.

Montana—Two per cent of gross value at well.

Wyoming and New Mexico—production tax based upon state and county assessments.

California—.66443 mills per barrel of oil produced and 17.39 cents per acre on proved oil lands.

WYOMING-MONTANA
(Effective Feb. 15, 1930)

Wyoming

Byron	$1.33
Ferris	1.60
Elk Basin	1.45
Grass Creek	1.45
Rock Creek	1.25
Lost Soldier	1.05
Lance Creek	1.53
Mule Creek	1.20
Notches	.65
Big Muddy	1.33
Osage	1.65
Hamilton Dome	.85
Pilot Butte	1.75
Torchlight-Greybull	1.65
Lander	.80
Rex Lake	1.10
South Casper Creek-Poison Spider	1.00

SALT CREEK
Midwest Refining Company

29 to 29.9 gravity	$ .90
30 to 30.9 gravity	.96
31 to 31.9 gravity	1.02
32 to 32.9 gravity	1.08
33 to 33.9 gravity	1.11
34 to 34.9 gravity	1.14
35 to 35.9 gravity	1.17
36 to 36.9 gravity	1.20
37 and above	1.23

MONTANA
(Effective Feb. 15, 1930)

Sunburst	$1.65
Cat Creek	1.48
Lake Basin	2.20

NEW MEXICO

Artesia	1.03
Hog Back	1.43
Maljamar	.95
Jal and Lea	*

(*) West Texas price scale used by The Texas Company and Humble Oil & Refining Co.

CANADA
(Effective Feb. 15, 1930)

Oil Springs	2.12
Petrolia	2.05

LOUISIANA-ARKANSAS
(Effective Jan. 16, 1930)

Homer, Haynesville, Caddo, El Dorado, De-Soto and Crichton and Cotton Valley*

27 to 27.9 gravity	$ .78
28 to 28.9 gravity	.84
29 to 29.9 gravity	.90
30 to 30.9 gravity	.96
31 to 31.9 gravity	1.02
32 to 32.9 gravity	1.08
33 to 33.9 gravity	1.11
34 to 34.9 gravity	1.14
35 to 35.9 gravity	1.17
36 to 36.9 gravity	1.20
37 to 37.9 gravity	1.23
38 to 38.9 gravity	1.26
39 to 39.9 gravity	1.29
40 to 40.9 gravity	1.32
41 to 41.9 gravity	1.35
42 to 42.9 gravity	1.38
43 to 43.9 gravity	1.41
44 gravity and above	1.44

*Shreveport-Eldorado's postings stop at above 40 gravity.

The posting on Cotton Valley is same as Caddo. From 36 to 52 and above the regular gravity schedule is followed.

The Texas Company pays North Texas gravity scale in North Louisiana.

STEPHENS

Below 28 gravity	$ .70
28 to 28.9 gravity	.75
29 to 29.9 gravity	.80
30 to 30.9 gravity	.85
31 to 31.9 gravity	.90
32 gravity and above	.95

SMACKOVER

Below 24 gravity	$ .85
24 and above	1.00

United States Daily Average Production

Figures below are taken from the complete revised estimates of the AMERICAN PETROLEUM INSTITUTE except for the current week, which are advance estimates issued by the A. P. I. and are subject to revision:

1929	Oklahoma	Kansas	Texas (Outside Gulf Coast)	Gulf Coast	North Louisiana	Arkansas	Eastern States	Rocky Mountain	California	United States Daily Av.	United States Total
March	666,500	95,500	662,500	147,750	35,800	74,250	108,850	70,400	786,000	2,647,400	82,068,350
April	665,600	106,400	650,100	154,550	35,550	72,900	110,850	69,400	781,350	2,646,700	79,402,100
May	679,650	115,400	651,100	150,350	35,350	71,500	114,150	72,850	749,250	2,639,600	81,827,600
June	685,200	120,750	688,200	147,500	35,700	70,050	116,750	72,000	827,200	2,763,400	82,902,250
July	722,050	124,250	718,950	148,150	35,750	68,650	122,000	74,250	874,850	2,888,900	89,555,250
August	728,100	127,950	750,750	153,100	36,300	66,900	126,600	77,900	873,300	2,940,900	91,167,250
September	714,050	128,450	741,200	156,600	37,050	65,300	137,250	78,600	874,850	2,933,350	88,000,650
October	673,600	113,400	714,550	167,050	39,700	64,550	137,400	77,950	876,600	2,864,800	88,809,500
November	640,300	110,050	702,350	171,350	36,750	63,700	135,400	76,550	706,500	2,642,800	79,285,050
December	650,000	111,600	687,850	161,350	38,700	61,850	140,650	76,150	698,200	2,626,350	81,417,000
1930											
January	671,050	111,700	672,650	178,300	37,650	58,500	142,250	73,850	688,850	2,634,800	81,574,650
February	631,900	111,400	654,600	199,950	39,450	58,400	135,050	74,850	746,550	2,652,150	74,280,200
March 1	617,200	114,700	654,600	203,450	41,800	58,500	133,050	77,550	723,000	2,623,950	18,367,650
March 8	604,300	113,650	648,500	205,350	41,750	58,100	133,600	68,700	661,400	2,535,350	17,747,450
March 15	652,100	116,200	655,250	199,850	42,000	59,250	133,050	73,900	651,600	2,583,200	18,082,400
March 22	616,200	117,150	646,450	203,050	38,650	58,700	131,900	74,400	649,400	2,535,900	17,751,300
March 29	615,000	114,500	629,900	214,150	43,300	58,600	131,750	75,900	631,100	2,514,200	17,599,400
April 5	635,600	117,550	630,350	212,700	43,700	57,750	134,850	77,250	620,700	2,530,450	17,713,150
Increase	20,600	3,050	450	.....	400	....	3,100	1,350	.....	16,250	113,750
Decrease	.....	.....	.....	1,450	....	850	.....	....	10,400	.....	.....

TEXAS (Outside Gulf Coast)

	April 5	March 29
PANHANDLE DISTRICT		
Carson County	9,450	9,850
Gray County	57,900	56,400
Hutchinson County	22,250	22,600
Wheeler County	800	450
Others	600	600
Total	91,000	89,900
NORTH TEXAS		
Archer County	17,500	17,600
Burkburnett	8,050	8,100
Electra	11,300	11,300
Iowa Park-KMA	5,200	5,100
Montague and Cooke Cos.	10,750	10,500
Wilbarger	25,050	25,850
Others	2,200	2,000
Total	80,050	80,450
WEST CENTRAL TEXAS		
Brown County	7,700	7,750
Callahan County	3,700	3,700
Coleman County	4,700	4,800
Eastland-Desdemona	5,550	5,500
Jack County	4,100	4,100
Palo Pinto County	700	750
Shackelford County	6,600	6,600
Stephens County	5,850	5,850
Throckmorton County	850	900
Young County	10,000	9,800
Others	1,400	1,400
Total	51,150	51,150
WEST TEXAS		
Ector	4,500	4,000
Crane-Upton Counties	46,000	46,400
Crockett County	2,100	2,200
Howard County	39,250	39,700
Jones County	2,100	2,100
Mitchell-Scurry Cos.	2,300	2,300
Yates	111,250	113,900
Pecos County	5,500	5,600
Reagan County	16,500	16,700
Winkler County	85,000	86,250
Others	2,700	2,850
Total	317,200	322,000
EAST CENTRAL TEXAS		
Boggy Creek	3,300	3,450
Corsicana-Powell	5,900	6,000
Currie	300	300
Mexia	4,000	4,100
Nigger Creek	200	200
Richland	250	250
Wortham	850	900
Van Zandt	16,100	10,200
Total	30,900	25,400
SOUTHWEST TEXAS		
Darst Creek	15,000	15,500
Dale	300	300
Laredo District	8,500	8,600
Luling	9,900	10,000
Lytton Springs	900	900
Somerset	1,300	1,350
Salt Flat	22,050	22,150
Others	2,100	2,200
Total	60,050	61,000
T'tl Tex. (Outside Gulf Coast)	630,350	629,900
TEXAS GULF COAST		
Barbers Hill	28,850	27,800
Batson	1,200	1,200
Big Creek	3,150	2,700
Blue Ridge	2,000	1,800
Boling	1,150	1,000
Damon Mound	600	500
Goose Creek	5,050	5,000
Hull	8,900	9,100
Humble	20,300	19,100
Orange County	2,300	2,500
Pierce Junction	12,650	11,000
Refugio	40,100	43,950
Raccoon Bend	10,300	10,250
Saratoga	1,050	1,050
Sour Lake	2,250	2,250
South Liberty	4,650	5,200
Spindle Top	15,300	16,350
Sugar Land	10,300	10,150
West Columbia	5,900	6,050
Washington County	1,800	1,650
Fannett	1,200	1,300
Port Neches	2,200	2,300
North Dayton	1,000	800
Esperson Dome	4,500	4,550
Others	5,800	6,100
Total	192,700	193,650
Texas Total	823,050	823,550
OKLAHOMA		
Asher	2,250	2,250
Carr City	8,950	9,350
Logan County	8,200	8,450
Braman	3,450	3,500
Blackwell	3,350	3,350
Hubbard	1,600	1,600
Thomas	650	650
Tonkawa	7,800	7,800
Garber	4,550	4,600
Burbank	16,400	16,300
Osage (Outside Burbank)	26,600	26,600
Cushing	14,300	14,350
Yale Jennings	9,850	9,800
Davenport	1,150	1,150
Bristow Slick	16,150	16,250
North Okmulgee	10,900	10,900
South Okmulgee	6,350	6,350
Cromwell	7,600	7,400
Papoose	2,950	2,800
Wewoka	3,750	3,950
Seminole	18,300	19,950
East Seminole	3,000	3,700
Bowlegs	18,900	19,800
Searight	11,050	10,600
Little River	39,500	42,000
East Little River	17,900	13,750
Earlsboro	32,050	35,100
East Earlsboro	39,000	35,300
Duncan District	7,300	7,300
Graham	3,550	3,500
Fox	1,300	1,200
Healdton	11,950	12,000
Hewitt	7,250	7,200
Scholem Alechem	13,400	13,350
Pearson	650	600
St. Louis	38,150	39,300
Allen	19,750	20,150
Maud	6,050	7,000
Mission	10,150	12,550
Oklahoma City	95,800	73,900
Sasakwa	14,050	11,500
Konowa	8,900	8,000
Others	60,850	59,850
Total	635,600	615,000
CALIFORNIA		
Santa Fe Springs	128,500	135,000
Long Beach	99,500	102,500
Huntington Beach	28,700	30,000
Dominguez	9,500	8,500
Inglewood	18,000	17,700
Midway-Sunset	72,500	74,500
Ventura Avenue	43,500	44,000
Seal Beach	24,500	24,000
Elwood-Goleta	40,800	39,400
Kettleman Hills	12,200	12,500
Others	143,000	143,000
Total	620,700	631,100
KANSAS		
Greenwood County	19,000	19,000
Florence-Covert	800	800
Peabody-Ebling	3,300	3,350
Eldorado-Towanda	13,450	13,450
Augusta-Fox Bush	2,900	2,900
Rainbow Bend	1,100	1,050
Russell	3,400	3,450
Churchill	4,450	4,400
Oxford	2,700	2,800
Sedgewick	20,850	21,050
Voshel	13,100	9,250
Others	32,500	33,000
Total North Louisiana	43,700	43,300

NORTH LOUISIANA

	April 5	March 29
Homer	3,600	3,600
Haynesville	4,600	4,600
Caddo Light	9,950	10,100
Caddo Heavy	2,600	2,700
DeSoto-Red River	3,150	3,100
Elm Grove	....	450
Carterville	4,250	....
Bellevue	....	650
Cotton Valley	2,300	2,300
Holly	1,300	....
Urania	5,300	5,350
Pleasant Hill	....	750
Zwolle	4,700	3,850
Others	1,900	5,850
Totals North Louisiana	43,700	43,300
LOUISIANA GULF COAST		
Lake Barre	1,500	1,850
Port Barre	2,000	1,400
Bayou Boullion	700	1,400
East Hackberry	1,450	1,200
Hackberry	1,200	1,200
Edgerly	500	550
Evangeline	900	1,100
Lockport	2,800	2,800
Sorrento	100	100
Sulphur Dome	3,150	3,350
Sweet Lake	100	100
Vinton	4,100	4,050
Others	1,500	1,400
Total Louisiana Gulf Coast	20,000	20,500
Louisiana Total	63,700	63,800
ARKANSAS		
El Dorado	3,950	4,000
Champagnolle	4,800	4,900
Smackover Light	5,250	5,300
Smackover Heavy	40,550	41,100
Stephens	950	950
Nevada	1,000	1,050
Lisbon	1,000	1,100
Others	250	200
Total	57,750	58,600
MOUNTAIN STATES		
WYOMING		
Salt Creek	31,500	30,300
Grass Creek	2,200	2,000
Elk Basin	800	800
Big Muddy	2,050	2,050
Lost Soldier	3,100	2,950
Rock River	2,200	2,200
Lance Creek	150	150
Oregon Basin	4,700	4,800
La Barge	2,400	1,900
Ohters	4,000	3,700
Total	53,100	50,850
MONTANA		
Cat Creek	1,200	1,200
Sunburst	6,000	6,000
Pondera	1,750	2,050
Others	50	50
Total	9,000	9,300
COLORADO		
Moffats (Craig)	1,050	1,100
Fort Collins	1,450	1,400
Florence	650	650
Others	1,450	1,600
Total	4,600	4,750
NEW MEXICO		
Table Mesa	100	100
Artesia	800	800
Hogback	450	450
Rattlesnake	450	800
Bal. Lea & Eddy Co.'s	7,800	7,900
Others	950	950
Totals	10,550	11,000
Totals Mountain States	77,250	75,900
EASTERN STATES		
(Including Ill., Ind, Ohio, W. Va., Pa., Ky., N. Y.)	122,500	120,000
Michigan	12,350	11,750
Total Eastern States	134,850	131,750
PRODUCTION SUMMARY		
East of Rockies	1,832,500	1,807,300
Total U. S.	2,530,450	2,514,200

114 more for Uncle Sam!

AFTER thorough investigations and exhaustive tests of all trucks which might be used, the United States War Department has placed an order with the Four Wheel Drive Auto Company of Clintonville, Wisconsin for 114 more FWD trucks. Ninety of these trucks are of two-ton capacity, and twenty-four are 5-tonners. They will be used for general army service in the United States and its possessions.

The FWD truck has been well known in the army for fifteen years. Large fleets of FWD's operated on the Mexican Border, and 16,000 were purchased by the War Department for service in the Great Conflict.

Throughout these many years of service, the Army has had ample time and opportunity to watch the performance of the FWD. It has been observed that its four-wheel traction and scientific construction throughout enables it to out-perform other trucks. Its ability to travel over poor roads and across country has been a big advantage in army maneuvers.

Yet the FWD has never been considered a special duty truck, for it does not generate greater power, but through its four-wheel drive principle, puts more of the power developed to use. It easily handles regular trucking work, and in addition, handles the emergency jobs which are too difficult for the ordinary truck.

The Four Wheel Drive Auto Company plant, which is the largest and oldest four-wheel drive truck factory in the World, has been manufacturing FWD's daily since 1910.

THE FOUR WHEEL DRIVE AUTO COMPANY
CLINTONVILLE WISCONSIN

Canadian Factory—KITCHENER, ONTARIO

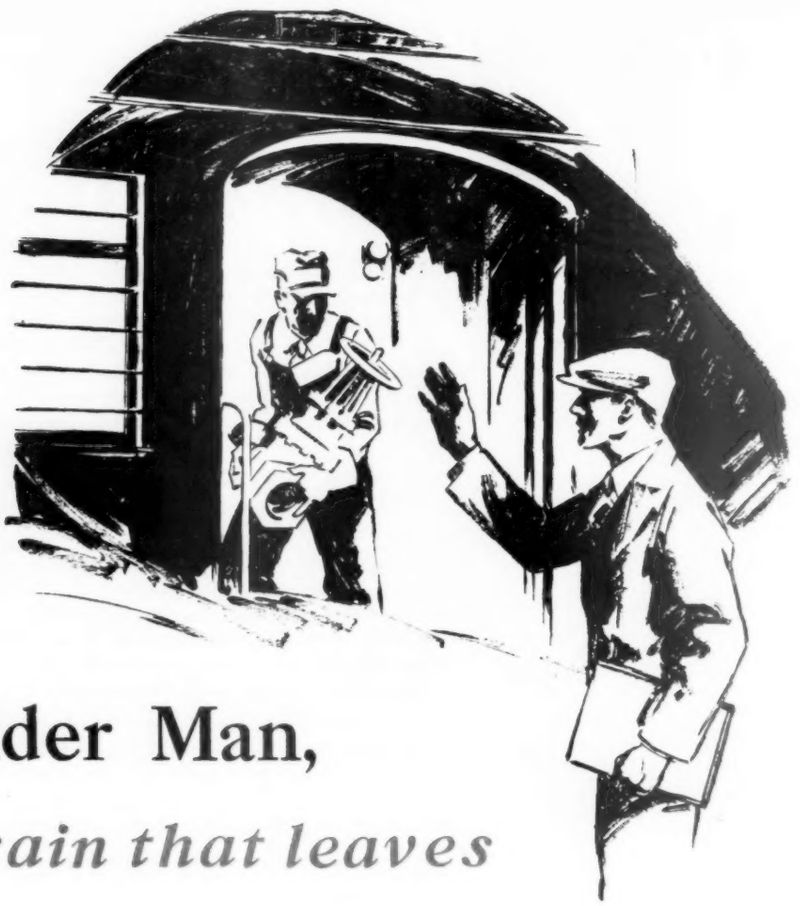
Demonstration for U. S. Army Officials. The FWD, which is loaded with two tons of iron, climbed this 65-foot bank which has a grade of 65 per cent.

When the United States Army engineers placed the order for that fleet of FWD's, they were satisfied that the trucks would successfully handle the strenuous army work.

Truck users in the oil fields have also found from years of experience that FWD's deliver the boiler, piping, derrick fixtures, oil well cementing equipment, or load of cement *where it is wanted*. The ability of this four-wheel drive truck and its economical operation, which will probably always amaze truck users, has been enjoyed by oil field operators for many years.

You, too, may need FWD trucks. They will easily handle your regular work and will also take care of those emergency jobs which are too difficult for the ordinary truck. Write today for information about the FWD Oil Field Special.

FWD TRUCKS—BACKED BY NATION WIDE SERVICE



The 9 o'clock Train, to a Norvell-Wilder Man,

Means the train that leaves at 9 o'clock - - -

Long experience in the oil country has taught every member of the Norvell-Wilder organization that when an oil man says he wants a valve put on a certain train — he has some good reason. When that train pulls out the percentage is an even hundred that the valve, plainly labelled, will be in the hands of the railway clerk.

DEPEND ON THE NORVELL-WILDER MAN

He is Working for You.

Norvell-Wilder *Supply Company*

BEAUMONT HOUSTON SHREVEPORT FORT WORTH

PERSONAL MENTION-MEN YOU KNOW

John F. Weinzierl, consulting geologist and geophysicist, is back in his Houston office following a trip to Cuba. He went there after attending the recent meeting of the American Association of Petroleum Geologists at New Orleans, and besides visiting in Havana made trips out of that city for geologic research and oil field inspection.

B. E. Hull, president of the Texas Pipe Line Company and of the Texas-Empire Pipe Line Company, was elected president of the association of former students of Texas A. & M. College on April 6 at the close of a three-day reunion of Houston members of that association. Mr. Hull was a member of the class of 1904.

Dr. Charles Baker spoke at the regular weekly luncheon of the Houston Geological Society on April 8, his subject being "The Overthrusts of Northeastern Mexico Cordillera."

Dr. Donald C. Barton, consulting geologist and geophysicist, Houston, is president of the Society of Economic Geophysicists, a new organization formed recently by a group of geophysicists of Houston. Through error his name was omitted in an account of the organization of the society published in the March 21 issue of this journal. Other officers include Dr. E. E. Rosaire of the Geophysical Research Corporation, vice-president, and John F. Weinzierl, consulting geologist and geophysicist, secretary. A constitution for the new organization is now being written.

Luther W. Mann has been engaged as drilling and production superintendent for the Deep Rock Oil Corporation, which is drilling a trio of tests near its wildcat producer in Andrews County section of West Texas. Mann is a native of Marietta, Ohio, and in recent years has been working in foreign oil fields. He will make his headquarters at Andrews, Texas.

Warner Clark, manager of The California Company's operations in Texas and New Mexico with headquarters at Dallas, departed late last week for San Francisco, where the general offices of the company are maintained.

Hal W. Stewart, for the last several years general counsel for Ohio Oil Company and Illinois Pipe Line Company at Casper, has been made assistant general counsel for those companies with Findlay, Ohio, headquarters.

Locke McDaniel, J. E. Schroeder, and C. A. McClelland have recently departed for various parts of the world in the interests of the Reed Roller Bit Company. McDaniel sailed for Europe on the Europa, and will visit Western and Central European fields; he will be gone about three months. Mr. Schroeder sailed last Wednesday for Venezuela and will make a complete tour of South America. Mr. McClelland sailed from the West Coast on April 4 for a complete trip around the world. He will visit the Dutch East Indies, the Far East, Russia and other foreign fields.

Joe Holmes, official of Lago Petroleum Corporation, now located in New York, arrived in Maracaibo on El Libertador recently for a month's visit. Mr. Holmes was at one time general superintendent for Lago Petroleum Corporation operations in Maracaibo Basin.

Edgar Johnston, president, Johnston Formation Testing Corporation, El Dorado, Arkansas, has recently returned from Rio Blanco County, Colorado, where he made a formation test for The Texas Production Company's Polter 1, wildcat, and got a one million foot gas well. This wildcat test is 5848 feet deep, with a 4¾-inch hole at bottom, and a special tool had to be made up for this particular job.

Leonard E. Vaughn, sales manager in California for Byron Jackson Company for more than a year, has been transferred to the New York office, located at 1245 Graybar Building, where he will have charge of export sales. Robert M. Cook, formerly sales representative for Byron Jackson Company in the Mid-Continent, has been given Vaughn's position in California. W. W. Grace, formerly production manager for the company, has been appointed purchasing agent to fill the vacancy caused by the recent death of George F. Clark.

Don Bowers general manager of W. C. Norris, manufacturer, Tulsa, and Mrs. Bowers are on a business trip through the South and East. They sailed from New Orleans April 1. Their proposed trip will consume about 30 days.

F. H. Pierson, deputy supervisor for the oil and gas division of the Texas Railroad Commission, has been transferred from Corsicana to Dallas, where offices will be located in the Chamber of Commerce building, as result of the rapid gain in drilling activity in and near the Van field.

H. E. Hancock has been given supervision over industrial sales of Sewall Paint and Varnish Company and will actively direct the company's efforts in the oil industry in the manufacture and distribution of paints and varnishes and other products used by oil companies. Sewall Paint and Varnish Company has plants at Kansas City and Dallas.

Earl Hagy, for nine years salesman in the Gulf Coast territory for Wilson Oil Tools Corporation, now Byron Jackson Company, Los Angeles has joined Wilson Supply Company as sales representative in the same territory. He will specialize in the sale of Wilson-Snyder slush pumps, Kewanee boilers, Link-belt chain, and Byron Jackson and International Derrick & Equipment Company drilling and pumping equipment, lines which are carried by Wilson Supply Company.

C. W. Zimmerman has joined the foreign sales department of the FWD Company of Clintonville, Wisconsin, and will go to Europe to represent this company in Russia and countries of central Europe. He sailed March 29 on the S. S. Cleveland for Hamburg, Germany.

Tulsa.—The Spring meeting of the Mid-Continent section, A. P. I. Division of Production will be held in the Crystal ballroom, Mayo hotel, May 23-24. The program committee has requested that information on the following subjects be sent in, later to be rewritten into composite articles for presentation:

Weighing Wells; Mud Fluids; Some Recent Developments in Deep Well Pumping Methods; Oil Treating Methods; and, Good Practice on Lease and Well Connections.

There will be an election of officers for the Mid-Continent district for 1930.

Shreveport.—The Louisiana Oil Refining Corporation has announced the purchase of the Ouachita Valley Oil Company, extending the marketing facilities of the purchasing company in Arkansas into the towns of Mount Ida, Glenwood, Amity, Oden and Norman. The purchase price was announced as "in the neighborhood of $50,000."

Ouachita Valley Oil Company operated two bulk plants and a number of controlled service stations. Louisiana Oil Refining Corporation now operates a total of 48 bulk plants and 140 controlled outlets in Arkansas, most of which have been acquired in the last seven months, starting with the purchase of the Gay Oil Company.

"Wild" Mary Sudik Under Control After 11 Days' Effort

(*Continued from page 27*)

cotton to counteract the drone of the flow. Sign language was used for all orders and all conferences. Frequently two or three would quit the derrick and retreat a distance, where talk could be heard. Then one would mount a horse and ride away to order something from a warehouse.

Mule skinners kept their teams and wagons back, awaiting orders to travel the mile and a quarter north, the point where trucks transferred their wares to wagons. The horses became so accustomed to the well that they would come without hesitation to the point for unloading supplies.

Sightseers Swarm Area

Sunday, April 6, the well drew its greatest volume of sightseers. Roads removed from the well and not closed to traffic were lined with automobiles whose passengers were drawn by curiosity. Guards frequently had difficulty in turning some drivers back. Some seemed to lack any appreciation of the fact that the well was not a spectacle to view from near with smoking not forbidden. While the guards were telling one man he could go no farther a woman in the car let it be known that she thought the party deserved some consideration, as they had driven since early morning in order to see the well.

If danger was a remote thought to the pleasure-bent element, it was an obsession to those near the well. To remain near it for an hour was to be overwhelmed with the thought that just one mishap would mean a holocost, that would go down as oildom's greatest tragedy.

The well was conquered by men of the Indian Territory Illuminating Oil Company. Engineers, superintendents and foremen turned well-fighters for the period and manned the derrick.

While the goal of the effort was to shut in the well, the first consideration was safety. That this precaution bore fruit can be appreciated by the fact that the task was completed without any accident of serious nature. There were some bruised fingers, a few falls and perhaps some strains. But no injury ever halted work at the well.

Now that the well is closed the task of getting the south part of the field back to normal development must begin. About 3000 acres of soil will have to be plowed under before boiler fires can be started. Thousands of barrels of oil must be picked up from holes and ravines. For a distance four miles north and south and two miles east and west there is not a track that is not filled with oil. The warm sun will drive vapors from it by day.

Perhaps the whole cost of conquering this well will never be calculated. When all the ramifications of the damage are considered, the possible figure carries the imagination close to the $1,000,000 mark.

No attempt has been made to fix the responsibility for the blowout. It is possible that the decision will be that common practice in the Oklahoma City field was not proper for a well of this class. If so, there will be changes in procedure and equipment to cope with future drilling.

Blowout Preventer Unavailing

The Mary Sudik 1 of the Indian Territory Illuminating Oil Company began flowing wild while the drill stem was being pulled from the hole the morning of March 26. An immense gas flow, estimated now at 200,000,000 cubic feet, had been found at 6472 feet. All but 19 joints of the stem had been removed when it was seen that the pressure was extremely high. A blowout preventer was in place, so this was closed.

Within 30 minutes the pressure and sand had ripped this apart and the well was out of control. The blowout preventer was made, of course, for control of the well with the tools at or near the bottom of the hole. So little of the stem, 570 feet remained for removal that the control device was at a disadvantage.

The night of March 27 the well began flowing oil. The oil flow continued to increase, adding further hazard to the work of bringing the well under control. Workmen succeeded in getting a master gate in place March 30. But this failed to hold and the next morning the flow of oil, gas and sand was back at its original menace.

Late the afternoon of April 4 an overshot was finally attached to the casing. The flow was allowed to pass upward through this for a time and then the valves were closed. But before midnight workmen found that the packing was giving away at the connection, so the valevs were opened and the crew gave up for the night, as no lights have been allowed within the danger area since the well became a menace.

This second unsuccessful attempt came after nine days of continuous and strenuous work. If that space of time looms large it must be admitted that the task looms even larger. The Mary Sudik is looked upon as the most difficult well-control job the Mid-Continent has ever known. The well is considered to be flowing 200,000,000 cubic feet of gas daily under a rock pressure of more than 2000 pounds. Oil output can only be estimated. Some placed the oil output at 25,000 barrels, while others ventured to place it at 50,000 barrels. Field pumps picked up about 15,000 barrels daily from low places near the well. Thousands of additional barrels have been driven by stiff spring winds for as much as 11 miles to the south.

Then there has been the further problem of an output of sand, which would reach several thousand tons, if it could be collected. Cores taken prior to cessation of drilling revealed a soft sand, which has been giving up its substance along with the oil and gas.

Crews Handicapped

It was under such handicaps that the crews were forced to work. Clad in rubber clothing, boots and metal hats, the men have toiled daily, with periods of rest at some windward point from the derrick. A few minutes of work and then a halt to wipe oil from the face, has been the course of the labor. When tired the men were removed from the derrick and given rest while others have taken up the tasks.

While the task of controling the well demanded all this effort under adverse circumstances the further problem of protecting the remainder of the field from fire and damage had to be provided. Perhaps 300 men were taken from other leases and put at some sort of duties bearing directly on the wild well.

At points well back from the well roads were barricaded and guards were placed. All automobiles were halted there. Only persons having some sort of business in the district were allowed to pass these outer guard posts. Still closer in, further guards were placed. Beyond these points no person could pass without written order. Still closer in were guards who would not recognize these passes. To pass this third line of guards it was essential that the person be at work on the well.

Only men of long experience were selected for the work at the well. These were put under the supervision of P. W. Sutton, general superintendent for the company in the Oklahoma City area, and under Clyde DeVerse, superintendent in the south part of the field.

Safety Precautions Taken

Safety measures to protect the working crew and the field reached minute proportions. A doctor was engaged to remain at the well. First aid equipment essential to his work was provided. A pulmotor and an experienced operator were provided. Several cases of minor asphixiation were treated at the well with artificial respiration. Many of the men in the working crew were experienced in applying artificial respiration. An ambulance remained in the field at all times, being moved at times to keep it as close as wind direction would permit. A stretcher was kept at the well, so any injured workman could be taken to the ambulance promptly.

While the well flowed wild all available oil was picked up with portable pumps. At first electric driven pumps were used. But it was finally decided to remove electric motors from the area because of the remote chance of fire. The motors had devices to prevent sparking but executives of the company and representatives of the state fire marshal's department thought best to put all pumps on gas engine power.

High lines in the field were cut after a few days. They had become oil coated and there was a chance that the oil would penetrate insulation and become carriers of electricity.

Oklahoma--Kansas Field Notes

Work Resumed on 147 Wells at Oklahoma City

OKLAHOMA CITY. — Efforts to bring the Oklahoma City pool back to normal development were started this week. With the Mary Sudik 1 of the Indian Territory Illuminating Oil Company under control, work was resumed on 147 wells.

The wild well was in the south end of the pool, where much drilling is under way and most of the wells were closed down on account of the hazard of drilling. Just as fast as the terrain can be plowed and oil picked up from depressions all wells will be put back either to producing or drilling.

Allowable production for the Oklahome City pool was changed from 12½ per cent of potential to 16 2-3 per cent of potential last Thursday, April 30. This will give the field allowable daily output of 102,000 barrels.

Last allowable daily output was 81,000 barrels.

All wells in the pool have been rechecked and some have been given different classifications under the new proration scheme. Monday, April 7, the Oklahoma City pool had production of 112,000 barrels from 40 wells. The field then had 171 wells, with all but 40 shut in. Sunday the field produced 95,000 barrels from 31 of the 139 completed wells of that date.

The field will have another 10-inch outlet as soon as Sinclair Pipe Line Company can finish construction of a parallel carrier announced last week. This line will follow its present line to a point near Shawnee, where it will tie into the trunk line system between Texas and Chicago.

New Sand Production

Magnolia Petroleum Company has production from a new sand in the West Chander pool. Decker 2, SW SW 8-14e, which came in suddenly April 6 from total depth of 3675 feet, flowing 100 barrels an hour with the tools in the hole. It continued to spray oil the next day with the result that one of the highways between Oklahoma City and Tulsa is blocked, while tankage is being built. The sand is thought to be the Burgess. The well will be completed as soon as tankage can be erected.

Deeper drilling on Brown 1, NE NW SW 24w developed oil 500 feet in the hole in the test of the Continental Oil Company and Barnsdall Oil Company. First oil was found at 5776 feet. The hole is being carried deeper and oil is rising. This well came in for gas production earlier. It indicates another pool for Garfield County, as the well is between the Garber production and the Roxana and Lovell pools in Logan County.

Two and half miles west of the Asher pool, Payne Drilling Company plugged back and ripped the eight-inch casing at 3505 feet to get production in Bullock 1, SE NE 22-6e. The well made 210 barrels in seven hours. This hole was drilled to the Wilcox sand, where it showed water.

Two Western Kansas Tests Getting Attention

Tulsa.—Two wildcat tests in Western Kansas are holding attention in that area. H. F. Wilcox Oil and Gas Company in partnership with Amerada Petroleum Corporation and the Dixie Oil Company is drilling ahead in chat on McCarty 1, SWc Section 22-25s-17w, after picking up gas at 4460 feet.

At present the well is drilling at 4475 feet and is making 11,000,000 cubic feet of gas. Gas was first found at the base of the Kansas City lime and and is now thought to be in the Mississippi chat. Earlier reports were that the well had made some oil. This well is in Edwards County and is three and one-half miles southeast of a well completed earlier by the British American Oil Producing Company.

The first well came in first for gas and later began making oil. The H. F. Wilcox Oil and Gas Company well is running higher structurally than the British American Oil Producing Company's well. The test of the Skelly Oil Company's Temple 1, SE SE NW, 30-27-7w, is still waiting for cement to set. The five-inch casing was set at 5241 feet, after a showing of oil in the Viola lime. The well will be drilled in when the cement has set.

Producers in the Ritz pool, McPherson County, have voted to continue proration until July 1. Wells will be allowed five barrels per day until May 1. After that production will be on a 50 per cent basis, with the potentials to be taken May 1 and June 1. Another oil pool for McPherson County is indicated by the action of the Mid-Kansas Oil and Gas Company's Pitts 1, c SW SW 9-19s-2w, which swabbed 120 barrels in 19 hours from chat, which was topped at 2924 feet. Forty-eight feet deeper it began spraying oil. This well is six miles north of the Ritz pool.

Real Drilling Campaign Getting Under Way in Hobbs Field

ARTESIA, New Mexico.—New locations staked for immediate drilling during the past week in the Hobbs field, located in eastern Lea County and near the Texas border, heralds a sizeable drilling campaign for the area, with more than 20 tests to the deep line horizon definitely assured. Entrance of Atlantic Pipe Line Company and Humble Pipe Line Company into the field with eight-inch carriers affords an ample crude market outlet for all of these tests, while the approaching completion for direct railroad connections for the field serves to remove the transportation barriers that have been partially responsible for the development of the field being delayed more than a year since its discovery by Midwest Refining Company.

Oil field supply houses have satisfied themselves that the field will have a showdown as to its oil possibilities this spring and summer, and are establishing branch warehouses to make a bid for the expensive material needed in completing wells in the 4200-foot horizon. The general practice of using combination rigs afford a broader field of business by the supply companies. Nearly a dozen stores and stock yards have been leased along the right-of-way of the Texas-New Mexico Railroad Company, which will finish its line to Hobbs before the end of April. Among the companies establishing branches are: Hercules Supply Company, Parkersburg Rig & Reel Company, Kirk-Morrow Iron Works Company, Republic Supply Company, Oil Well Supply Company, Continental Supply Company, Internaitonal Supply Comany, National Supply Company, Dunigan Tool & Supply Company and others. The former company has been established for a number of months, and hauls all stocks more than 50 miles overland.

Three drilling contracts awarded during the past week on virtually

proven leases in the Hobbs field require three offsets in each instance, thus making a total of 12 new locations in prospect. Gypsy Oil Company has purchased materials to drill in NWc SW NW Section 32-18s-38e, or about one mile southeast of the largest producer in the field. Tidal Oil Comany has staked location in SWc NE SE Section 29-18s-38e, and Walker Oil Corporation has given contract to Eastland Oil Company (Donnelly Brothers) to drill O. B. Terry 2 in the SWc S½ SE Section 10-19s-38e, or one location south of the company's shut-in producer. This location requires a south offset for Prairie Oil & Gas Company, and two offsets for Midwest Refining Company. Prairie Oil & Gas Company is also to drill a second test on this quarter section lease to take care of east offset to Midwest Refining Company's Leach 1. Carl Short, Dallas, has been given contract to drill the two tests being started by Amerda Petroleum Corporation on the northwest end of the field. The Texas Company's State 1-C has been ordered drilled immediately in NEc Section 25-18s-38e to take care of offsets now being drilled by Texas Pacific Coal & Oil Company, Amerada Petroleum Corporation and Shell Petroleum Corporation. The latter has cemented 10-inch casing at 2752 feet.

The brown lime horizon has been picked up at the 2750-foot horizon by the Shell Petroleum Corporation and Ohio Oil Company's offset tests on state fee in Section 32-18s-38e, and are likely to be the next completions for the field. They are on a direct line between production, and on the subsurface high.

Cranfill-Reynolds Company et al's State 1-D failed to make a west extension to the Lynch-Lea field, and encountered a hole full of sulphur water at 4042 feet. This test is located in SEc NW Section 3-21s-33e, and encountered the brown line at 3770 feet, with a surface elevation of 3822 feet. The same company's State 1-C, SWc SE SW Section 16-23s-36e, is making about 10 million cubic feet and spraying about 100 barrels oil daily while drilling life at 3610-3715 feet, thus making the third producer for the Henry pool. Texas Pacific Coal & Oil Company's State 3-A, located a half mile to the southwest, declined in production to 600 barrels, and was deepened from original lime at 3680-3708 feet to 3739 feet without increase in production. However, some water has resulted from deepening. The latter's State 4-A is drilling at 2090 feet, being an offset to the new producer for the pool.

Atlantic Builds Tanks

Atlantic Oil Producing Company proposes to have one or more 55,000-barrel tanks completed to begin purchasing crude in the Hobbs field early in May, while the eight-inch trunk line system of Atlantic Pipe Line Company is slated to be in operation in June. The latter has obtained a pump station site in NW Section 12-19s-38e, being south of the field, and the first group of tanks will be spotted on this tract. The Texas-New Mexico Railroad, which is now nearing completion to Hobbs, cuts across the east side of this tank farm and pump station site. Atlantic Pipe Line Company's line will extend southeast to the wildcat oil producer in Andrews County, Texas, thence to Midland, where connection will be made with the company's 10-inch line to the Gulf Coast. The Midland-Hobbs unit will require about 78 miles of pipe, with one main line station on the north end. This station will be equipped with gas burning engines and reciprocating pumps. An intermediate station will be installed when traffic justifies. R. W. Howe is vice president and general manager, and J. H. Wood, Jr., is general superintendent of Atlantic Pipe Line Company, with headquarters in the Magnolia building, Dallas.

Humble Starting Line

Humble Pipe Line Company is starting work on its 40-mile eight-inch extension line from Jal station to the Hobbs field, and will porbably be in operation by the middle of May. This company has considered such a pipe line project for months, but held back until Atlantic Pipe Line Company made a bid for oil in the field.

Entrance of Shell Pipe Line Company from Hendrick field, Texas, with an eight-inch extension line to Hobbs, a distance of about 65 miles, is dependent upon the production performance of two tests being drilled by Shell Petroleum Corporation. A decision is due on this pipe line project before the close of April.

Amerada Earnings

Amerada Corporation reports net earnings for the year ending December 31, 1929, after all charges including depletion, depreciation, drilling expenses, taxes, etc., of $2,758,900.15 or $2.99 per share on 922,075 shares outstanding. This compares with $2,214,109.63 or $2.40 per share during 1928. Sale of a one-half undivided interest in all of the company's non-productive leasehold in Oklahoma and Kansas to Dixie Oil Company added $5,000,000 in cash and a second $5,000,000 to be paid out in oil. Of the cash payment, $2,000,000 represents clear profit; and the $5,000,000 to be paid in oil will be all profit, being carried on the books as a value of one dollar.

Net crude production during the year was 5,092,389 barrels as compared with 6,286,507 for the previous year. Natural gasoline production totalled 22,533,500 gallons as compared with 21,759,465 the previous year. Of the 135 wells completed during the year, 85 were oil wells, five were gas wells, and 43 were dry; 42 oil wells and two gas wells were exhausted during the year. As of December 31, 1929, the corporation was operating 599 oil wells and 27 gas wells, and 39 wells were in the process of drilling.

Standard of California Earned $3.70 Share

San Francisco.—Standard Oil Company of California earned $46,633,490.10, or $3.70 per share on the average outstanding stock, during 1929, after allowing $21,317,691.26 for depreciation, depletion and amortization and a reserve of $2,595,000 for federal income tax, as compared with a net earning of $46,083,817.55, or $3.66 per share, during 1928. Stockholders on record December 31 totaled 57,300, of which nearly 40 per cent were women. Stockholders owning 500 shares or less comprised 95 per cent of the total, holders of 100 shares or less numbering more than 76 per cent and holders of 25 shares or less standing at 51.53 per cent of the total.

The company's total production of crude oil during the year was 51,534,163 barrels, an average of 141,190 barrels daily, with a shut-in production in California of 51,636 barrels. Holdings of developed and undeveloped oil lands as of December 31 follow:

Domestic Acreage

	Lease	Fee	Mineral Rights	Govt. Permit	Total
California	152,836	288,160	35,734		476,730
Colorado	1,200	5,000			6,200
Montana	39,355	4,203	40		43,598
New Mexico	37,454			41,250	78,704
Oklahoma	6,480				6,480
Texas	548,276	2,500			550,776
Wyoming	2,560			2,240	4,800
Idaho	10,298				10,298
	798,459	299,863	35,774	43,490	1,177,586

Foreign Acreage

	Contract	Fee
Colombia	167,060	3,780
Mexico	446,980	
Venezuela	577,127*	
	1,191,167	3,780

*Includes all of 199,417 acres held by Standard Oil Company and Beacon Sun Company.

North and West Texas Field Notes

H. H. KING, *Staff Representative, Fort Worth, Texas*

Big Lake Deep Test Now Down 8573 Feet

San Angelo.—Swabbing and bailing of rotary mud from Big Lake Oil Company's University 1-C, a west offset to the deepest oil producer in the world, was underway Tuesday afternoon, April 8, with a total depth of 8573 feet.

This test is situated in the heart of the Big Lake field and is the deepest drilled hole outside of California. Sand with streaks of calsite and black lime were cored late last week.

Big Lake Oil Company's University 1-C is also making a bid for deep production honors, and early this week was having trouble with cavings while drilling shale formation at 8565 feet, with the hole loaded with salt water because of upper oil and gas production. Cable tools are being used on the latter.

Group One and Continental Oil Company's discovery well of this deep horizon continues to flow 2825 barrels oil and 27,250,000 feet of gas daily at 8523 feet.

Judkins Lease Deal Means Orderly Development

San Angelo, Texas.—An orderly drilling program on the north end of the Judkins field, Ector County, is to be gained through the action of four of the largest owners of leases in this section of the field making a joint purchase of a number of small tracts along with a batch of wildcat leases from L. C. Turman and Joe C. Maxwell, Fort Worth operators. The latter received $600,000 for a total of 4557 acres of leases in the county, including $200,000 cash; $200,000 payable in cash at rate of $20,000 monthly; and the remaining $200,000 from one-half of the seven-eighths of the first oil produced. Skelly Oil Company acquired an undivided one-half interest and operating control of the leases, while one-sixth interest each has been contracted for by the California Company, Tidal Oil Company and Independent Oil & Gas Company.

More than 2000 barrels of new production was added to the Judkins field during the past week from three new completions on inside locations, thereby boosting the daily output to about 6000 barrels at the start of the new week. Humble-Penn-Atlantic's Kloh 2-D, R. L. York 2 and R. L. York 3 provided the new production from the regular 3700-foot lime. Landreth Production Corporation's University 2-S encountered a softer formation, and flowed 1140 barrels initial while drilling in lime at 3570-3667 feet. Because of the tight lime, Humble et al's York 2 was shot with 300 quarts at 3600-93 feet after plugging back from bottom hole water at 3740 feet, and made 470 barrels during the first 15 hours.

Encouraged by the completion of a 43 million cubic foot dry gasser at 1520 feet on the Smith-Mathews 1-A lease, Transcontinental Oil Company and Arkansas Fuel Oil Company are moving in machines to drill three more tests in this general area, which is due west of the southwest edge of the Yates field, Pecos County. The gasser has been shut in, pending a market outlet.

Bowers - Jackson Field Extended to Southeast

Amarillo, Texas.—Trend of production from the Bowers-Jackson field, Gray County, took an unexpected jump to the southeast late last week when the Gulf Production Company's J. B. Bowers 1, NE c SW SE Section 63, Block B-2, swabbed and flowed at rate of 70 barrels per hour from granite wash formation at 3075-81 feet. This well is about three-quarters mile southeast of the field, and was drilled because of lease expiration on the 160-acre tract.

Completions on the north end of the Finley-Brown field, Gray County, are making their appearance as result of the revived drilling campaign launched in February and March, and a steady boost in crude yield of the county is in sight for some weeks hence. The county averaged 57,945 barrels daily during the past week, as compared to 56,640 barrels daily during the previous week. Magnolia Petroleum Company's J. E. Wright 5 flowed with the aid of gas 864 barrels during the first nine hours, and April 3 was making 65 barrels hourly at 2800-60 feet. This company's Wright 3 is flowing 2600 barrels daily, although completed late in January. The Texas Company's J. E. Wright 2 encountered the granite wash higher than usual, and flowed 45 barrels per hour at 2755-2840 feet. Danciger Oil & Refining Company and Champlin Refining Company's Cook-Faulkner 4-A made 40 barrels hourly at 2830 feet, and Cook-Faulkner 5-A made 60 barrels per hour at 2898 feet.

The Finley-Brown field has 22 tests scheduled for completion within the next 45 days, and most of these are situated on leases already proven for flush production.

Oil possibilities in northwestern Moore County were revived last week when the wildcat test of the Operators Royalty Company and Dana Oil & Gas Company on the C. R. Jones land, SWc SW SW Section 164, Block "3-T," T&NO Survey, developed a spray of oil estimated at 20 barrels daily from top of oil bearing lime at 3360 feet. This well is making about 25 million cubic feet of dry gas at 3225-3360 feet, with six-inch casing set at 3145 feet. It is located three miles northeast of the shut in oil producer of A. D. Morton & Company et al.

Drilling crew, Wheat 1-H, deep test, Rio Grande Oil Company, Lockhart pool, Loving County, Texas

Wildcat Work in East Texas Area Becoming More Active

CORSICANA, Texas.—Extension of the oil producing area in the Van field about 3500 feet to the east was in prospect early this week when Humble Oil & Refining Company's W. Freeman 1 cored oil saturated sand and cemented seven-inch casing at 2850 feet, preparatory to further penetration of the sand and testing for production. This outpost test is located near the center of the east line of 31½-acre tract, and in the event of a successful completion would give the producing area a width of 8000 feet, while it is already proven for a distance of 10,000 feet, extending in a northwest to southeast direction. Humble Oil & Refining Company is the second largest lease owner participating in the unit plan, having seven and three-quarter per cent interest in the unitized area. The Freeman test is the first to be drilled on acreage contributed by the company to the pool, as its leases are located east and northeast of the producing area.

Recent completions in the Van field swelled daily production above 20,000 barrels early this week from 16 completions. This increased output has been followed by a gain in tank car shipments, and also additions to field storage, which is being added to by the erection of a group of 55,000-barrel tanks. The output of the field is nearing the maximum production level of 25,000 barrels daily set for the field for the first half of 1930. Favorable weather has enabled Pure Oil Company, which is the sole operator in the Van field, to make good progress on welding on both ends of its 10-inch line to the coast.

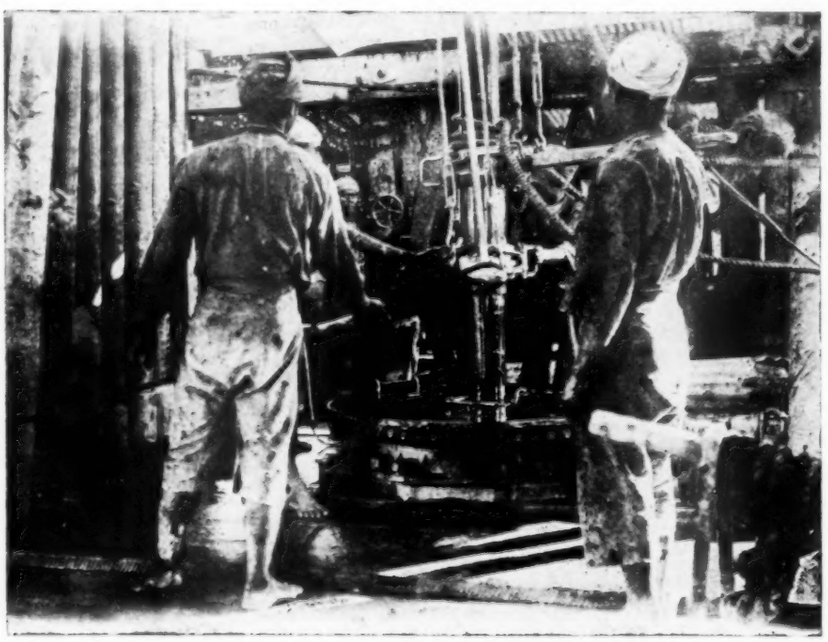
The Pure Van Pipe Line Company has been organized by Pure Oil Company to construct and operate this trunk line, and W. MacAverill, who has charge of the pipe line construction work with headquarters at Beaumont, has been elected vice-president and general manager of the new subsidiary.

Wildcat operations in the group of counties to the north and south of the Van field are getting under way in increasing numbers, and more than a dozen have drilled past the 3000-foot level without offering any indications of uncovering new oil areas. A number of these are near contract depths.

L. G. Priest of Fort Worth and associates have erected 120-foot wooden derrick to test a block of 300 acres, located about four and one-half miles south of Canton, Van Zandt County, and will start drilling next week. Location was made 175 feet from the northeast and southeast lines of the Blanche Blewett 84-acre tract, Block 18, Elizabeth Porter Survey. Tom Sharp, Corsicana, has contract to drill with rotary to the 3000-foot horizon. The Canton area is the most popular wildcat drilling center in the lower part of Van Zandt County, while the town of Grand Saline, where a group of established salt domes exist, is being explored on all sides by wildcats seeking production in the Woodbine formation.

Titles are being checked on the 2000-acre block lying to the south and east of Wills Point, Van Zandt County, by E. I. Chapman, Fort Worth operator, to drill a test to the Woodbine sand level, starting within 60 days. This block was assembled by the Chamber of Commerce of Wills Point, and turned to Chapman for a test.

Geophysical parties are checking and re-checking many wildcat blocks of lease in the Central East Texas district. More than a score of such parties, using the torsion balance and seismograph instruments, are now at work in the group of counties lying to the south and north of the Van field. Many of these crews were pulled out of the West Texas district and the upper Mid-Continent. Gulf Production Company is reported as having more than a half dozen separate parties in the field, while Shell Petroleum Corporation has almost as many at work. Humble Oil & Refining Company, Pure Oil Company, Sun Oil Company, Mid-Kansas Oil & Gas Company, Amerada Petroleum Corporation and others are prospecting in the district. Many of these parties are working out of Tyler, which is the principal leasing center of the district.



One of Emsco Derrick & Equipment Company's latest type portable drilling machines being operated by native laborers in Negya, Chauk, Burma. A. B. Stephens, who snapped this photograph, says the young coolies are quick to learn their job, and that the high cost of shoe leather never worries them

Swastika Extension Starts Drilling Campaign

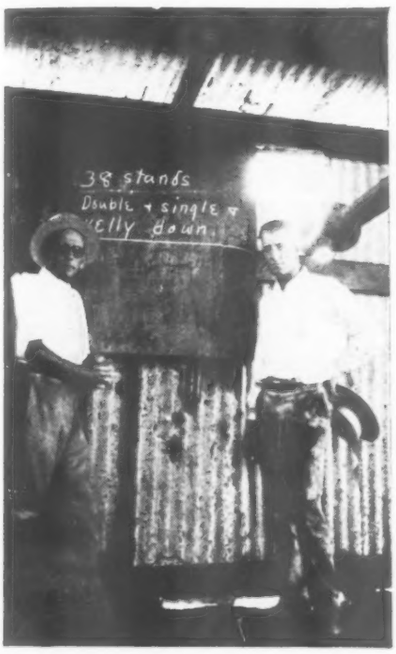
Wichita Falls, Texas. — Attractive production is being developed on a group of leases comprising a west extension to the north end of the Swastika field, Archer County, and a sizeable drilling campaign is assured for the area until drilled up. Lester T. Burns et al's R. W. Fails 1, located on the east line of Section 24-19, widened the producing area with an initial flow of 250 barrels daily at 1368 to 1381 feet, and Fails 2 is running pipe to complete on a location to the north.

J. H. Massie et al are drilling three additional tests on their Richardson tract after having swabbed and flowed 250 barrels initial on Richardson 2 and 3 wells. Reinstatement of lease drilling obligations on the W. T. Waggoner ranch properties, Wilbarger County is likely to be announced shortly by R. L. More, who has direct supervision of the oil activities owing to a substantial improvement in the local crude market situation.

A general cessation of field work other than required offsets was put into effect by More about January 1 because major crude purchasers restricted oil acceptances, which caused more than 30 rigs to be shut down.

In the Nocona field, Montague County, Arco Oil Company's Salmon 1 "E" is showing for a better producer than the average, having swabbed 25 barrels per hour during first 12 hours. Then it swabbed 450 barrels during the next 17 hours from sand at 1712 to 1742 feet. The well is being standardized to pump.

Field Wrinkles From Hither and Yon



Left: Ralph Wilcox, superintendent of rotary drilling; right: Jay Daly, driller; Anglo-Ecuadorean Oilfields, Ltd., Ancon field, Ecuador.

A BLACK-BOARD AS AN ADJUNCT TO A ROTARY RIG

Ralph Wilcox, superintendent of rotary drilling for Anglo-Ecuadorian Oilfields, Ltd., at Ancon, Ecuador, finds a black-board a very helpful adjunct to a rotary rig. It is used as a remedy for forgetfulness.

Oft-times, when the tool-pusher walks up on the derrick floor, he plunges immediately into conversation with the driller and, perhaps, becomes so immersed in discussion of the status of the hole that he forgets to inquire regarding the driller's needs; and, likewise, the driller forgets to submit his requisition for supplies, tools, and repair parts. In the Ancon field, when the need for a certain article arises, the driller writes it down on his black-board. When the pusher arrives, he finds it staring him in the face in black and white; and there is no opportunity for either to forget.

The black-board serves another purpose, as a temporary record in logging the hole. Rather than tax his memory with the length of drill pipe inserted from time to time, the driller simply chalks it up on his black-board and forgets all about it until he makes another connection, whereupon he revises his record and starts all over again. The black-board is also useful in the temporary logging of changes in formation. Perhaps the driller may have oily hands when a change in formation is encountered, in which case he simply chalks it up on his black-board, without even removing his gloves or without soiling his log-book. At the end of the tour, he transfers this temporary record to his permanent log; and nothing is overlooked or forgotten.

The black-board is of home-made construction, made of soft pine or redwood boards painted black and being about three feet wide by four feet long. A wad of cotton waste is used as an eraser.

ADJUSTABLE COUNTERWEIGHT

California drillers, noted for the shipshape condition in which their rigs are maintained, have developed an adjustable counter-weight for balancing tongs which is worthy of wider use. Of course, a Gulf Coast driller would get along all right with a wooden box filled with cement, rocks, thread-protectors, or such other weighty junk as he might have at hand; but the Pacific Coast driller, accustomed to rigging up on semi-permanent basis at each location, insists on a more tidy appearance of his rig.

Counter-weights used by California drillers are made in the welding shop of eight-inch pipe. Nipples five or six feet long serve to hold enough water to counter-balance the tongs—water being the adjustable weighting medium by which the tongs can be balanced exactly, to the last fraction of an ounce or, in fact, to a single drop of water. An eight-inch metal plate is welded onto the bottom of the nipple of pipe, forming a fluid-tight bucket. Sometimes another plate is welded onto the top; but that is not necessary. When this is done, however, a two-inch hole is cut in the center of the top plate, into which is welded a nipple or collar to serve as a water inlet. In other more pretentious models, a two-inch stop-cock is provided at the bottom for draining off the water to assist in establishing the proper balance. The bail of this glorified water-bucket, for such is what it amounts to, is made of a loop of five-eighths-inch sucker rod, bent in the form of an inverted V, the ends being welded to the top of the bucket.

R. G. Brown, driller, Union Oil Company, Santa Fe Springs. At his back is an adjustable counter-weight for balancing the weight on the tongs

Fire extinguishers, Union Oil Company, Santa Fe Springs, California

Since no such device can be permitted to swing free in the derrick, a 20-foot joint of two-inch pipe is used as a guide shaft, on which the bucket slips up and down as the tongs are lowered or raised. The bucket is sometimes fastened to this upright shaft by means of two three-inch loops of five-eighths-inch sucker rods, one loop being welded to the side of the bucket near its top and the other at a point near its bottom. In other models, two six-inch nipples of three-inch pipe are welded to the side of the bucket, one near the top and the other near the bottom, which operate as sleeves which slide over the guide-shaft as the counter-weight slips up and down. The bottom end of the upright shaft is flanged and bolted to the derrick floor, the top end being fastened to the second girt of the derrick.

Gulf Coast Field Developments

JACK LOGAN, *Staff Representative, Houston, Texas*

Chief Interest at Refugio in Tests Over Mile in Depth

HOUSTON. — Union Producing Company's Rose Lambert 1-A at Refugio, completed April 1 as the deepest oil well in the Gulf Coast region of Texas, continued to increase in production for several days afterward, but on April 7 began developing water trouble. It was reported in Houston, April 8, that the well was producing approximately 50 per cent salt water, along with 180 barrels net oil daily.

Although the depth of the well was originally announced as 6475 feet, steel line measurement showed it to be 6468 feet. The well is flowing through 5 3/16-inch casing without the aid of tubing. One 12-foot joint of screen was set in the sand, and the reported initial production was 120 barrels pipe line oil and 3,000,000 feet of gas through one-quarter-inch choke, with working pressure of 1240 pounds. On Saturday, April 5, the well was producing nine barrels per hour, or at the rate of 216 barrels daily, through a 9/32-inch choke, pressure being 1060 pounds. Gravity of the oil was 42, no correction of it being necessary as the temperature was 60 degrees.

This deep well of Union Producing Company is in the eastern portion of the field. It is approximately 2500 feet northeast of the same company's Shelton 1, nearest of the group of 5500-foot wells which are furnishing the deepest and most easterly oil and gas production of the Refugio field proper. The greatest producing depth of the Refugio area prior to completion of Rose Lamber 1-A was 5884 feet, that being the total depth of Union Producing Company's M. F. Lambert 1, a wildcat producer located two miles northeast of the nearest production of the main field.

In spite of several completions at Refugio during the past two weeks there was a decrease in production. According to the estimates of the American Petroleum Institute, the average daily production during the week ending April 5 was 40,100 barrels, as compared with 43,950 barrels daily during the previous week.

There have been no completions except in the 3700-foot sand since the above mentioned deep producer came in, but there were four of those shallower completions.

Union Producing Company's Shelly 4 came in flowing 500 barrels pipe line oil daily, unrestricted flow, with casing cemented over sand which was logged at 3647-61 feet.

Pearson Properties, Incorporated, completed Johnson 1, Block 11, for 300 barrels initial production through a 5/16-inch choke, working pressure 500 pounds, from total depth of 3690 feet. The oil sand was encountered at 3673-90 feet, 6⅝-inch casing was cemented at 3674 feet, and a 16-foot joint of perforated pipe was set in the sand. Ed Price has junked and abandoned Mission River 1 in which drill stem was stuck at 2704 feet in sandy shale and boulders.

Independent Oil & Gas Company's West 3 came in blowing a spray of oil and showing 750 pounds gas pressure when swabbed in from total depth of 3686 feet. One joint of screen was set in the sand, with 9⅝-inch casing cemented at 3686 feet.

March Production 1,192,052 Barrels

For the first time in its history Refugio ranked during March as a 1,000,000-barrel per month field, yielding a total of 1,192,052 barrels of oil during the 31 days of that month from 118 wells. That represents an average of 10,102 barrels per well for the month, or 325.8 barrels per day per well.

The record of oil production at Refugio since completion of the discovery oil well, Texas Gas Company's Clint Heard 1, on July 28, 1928, has been as follows:

Period—	Bbls. Prod.
1928	56,600
1929	1,992,950
January, 1930	784,382
February	973,604
March	1,192,052
Total	4,999,588

The bulk of this production total represents heavy crude (below 25 gravity), being produced from the 3700-foot sand which extends over nearly all of the Refugio field. But there are now seven Refugio wells producing lighter oil from greater depths, aside from the new 6500-foot oil well of Union Producing Company, and it is interesting to note that the high gravity oil produced from those seven wells during March represented approximately one-eighth of the total production, although they constituted only one-seventeenth of the total number of wells in the field. While the average production per well during March was 10,102 barrels for the field as a whole, the seven high-gravity oil wells, producing 143,916 barrels, showed average production per well of 20,559 barrels. Following is a table showing details of production of the Refugio deep wells:

Refugio Light Oil Production

Company and Well—	March Prod.	Total Prod. to April 1, 1930
Union Producing Company—		
Mitchell 2	16,112	45,873
O'Brien 1	17,088	76,372
Powers 2	3,643	4,375
M. F. Lambert 1	48,558	51,713
Morgan Oil Corporation—		
Tom Heard 1, Block 3	7,398	7,398
Pearson Properties, Inc.—		
Ryals 1	13,357	13,357
Saxet Oil Company—		
Ryals 1	37,760	71,452
Total	143,916	270,540

Six of the above wells are producing from the "O'Brien" sand found around 5500 feet. The other one, Union Producing Company's M. F. Lambert 1, wildcat producer mentioned above, is 5884 feet deep. Incidentally, it is one of the most prolific of the deep producers. It was completed February 25, 1930. It is to be noted in connection with the above table, also, that the wells of Pearson Properties, Inc., and Morgan Oil Corporation were completed during March, and the totals do not include a whole month's production.

There are more than 40 drilling operations at Refugio at present, and 10 of them are deep tests which are at interesting stages.

Morgan Oil Corporation's Powers 1 is drilling sticky shale at 6126 feet.

Union Producing Company's M. F. Lambert 2, a second test on the tract on which the 5884-foot producer is located, is drilling hard lime at 5279 feet.

Houston Oil Company's Tom Heard 1, Block 16, cored sand with slight odor of oil and gas at 5447-50 feet, and was coring at 5456 feet late last week. That company's Doughty 1, Block 23, tested 1000 pounds dry gas at 5432-40 feet through drill stem test, and later cored gas sand at 5440-46 feet. Houston Oil

Company has made location for Rose Lambert 1 at a point 350 feet west of Union Producing Company's 6500-foot producer, and is building derrick on it.

Independent Oil & Gas Company's J. F. B. Heard 1-C is drilling lime rock at 5184 feet, and this company's Helen Reilly 1, which will be deepened to the 5500-foot sand, is drilling sand at 4038 feet. The same company's M. F. Lambert 1, which will try for the 5800-foot production, is drilling hard sandy shale at 1200 feet. Its Mercy Academy 1 is drilling lime and shale at 4665 feet, and O'Brien 1, which was drilled originally to 6489 feet but failed to develop production, was plugged back to 6480 feet, and following setting of an 18-foot joint of perforated pipe swabbed salt water, and is now waiting on orders. That well apparently is in the same sand from which Union Producing Company's new well, Rose Lambert 1-A is producing, but is lower structurally.

Mission Drilling Company's Moss 1, Block 101, which was drilled originally to 5493 feet, was plugged back to 5486 feet, tested salt water, and will be deepened; 6⅝-inch casing is cemented at 5480 feet. The same company's O'Brien 1 has 8¼-inch casing cemented at 5406 feet, and will be drilled in shortly. Total depth of the well is 5431 feet. Sand with oil show was cored at 5406-27 feet, and a drill stem test showed 5½ fourbles of oil, no water, in three minutes.

In addition to the above wells, there are several other tests at Refugio which have the deep sands as the objective. Union Producing Company's O'Brien 3 and O'Brien 4 are among them, and both are drilling below 4000 feet. Saxet Oil Company's Ryals 2 is drilling shale at 2153 feet. Houston Oil Company's Kay 1 has set surface casing.

3700-Foot Sand

There are nearly a dozen Refugio tests nearing completion in the 3700-foot sand. Union Producing Company's Morgan-Shelly 3 is coring sandy shale at 3668 feet, and Morgan-Vance 3 early in the week was preparing to swab, with 8¼-inch casing cemented over oil sand found at 3681-89 feet.

Stroube & Stroube were sidetracking in Cable 1, which was drilled originally to 3682 feet. Sun Oil Company is waiting for cement to harden in Buckley 3 around 5 3/16-inch casing which was set at 3568 feet over oil sand which was drilled into to the depth of 3693 feet.

Houston Oil Company's Rooke 14 also was waiting for cement to set early this week. Oil sand was encountered at 3684-99 feet, and 8¼-inch casing was set at 3684 feet. That company's Fannie Heard 9, a workover, was nippling up late last week, casing having been cemented at 3704 feet over sand logged at 3703-18 feet. Houston Oil Company's Leisering 1, Block 55, has 8¼-inch casing cemented at 3683 feet over oil sand. Its Ryals 1, a workover, is milling at 3484 feet.

E. M. Jones has reset screen in J. F. B. Heard 1-A, total depth of which is 3689 feet, and was swabbing the well late last week. His Jeter 1-A, which found the oil sand at 3681-96 feet in a sidetrack hole, sanded after being swabbed, and efforts are being made to clean the well.

Refugio Production During March, 1930

Company—	No. Wells	March Prod.
Benedum & Trees	4	12,754
Fox & Heflin	1	2,419
Dr. W. E. Hewitt	2	4,614
Houston Oil Company	19	124,456
Heep Oil Corporation	2	75,464
Independent Oil & Gas Company	12	95,568
E. M. Jones	1	14,783
Larco Company	2	25,081
T. P. Morgan	1	8,128
Morgan Oil Corporation	14	187,384
Pearson Properties, Inc.	7	78,724
Refugio Oil Corporation	3	114,179
Saxet Oil Company	13	107,670
Sun Oil Company	6	33,624
Texas Gas Company	1	272
Union Producing Company	29	304,655
Field Total (March)	118	1,192,052
February Total	94	973,604

March production: average of 10,102 barrels per well, or 325.8 barrels per day per well.

Prolific Darst Creek Well Starts Five Offsets Drilling Fast

SEGUIN, Texas.—Five offsets to the record producer developed recently by Magnolia Petroleum Company from a crevice on the west side of the Darst field are drilling at top speed to try and share in the prolific flow of oil afforded by the underground reservoir. This unusual well is located in the northeast corner of the M. E. Roamell 50-acre lease, and was reported last week as showing a daily potential flow of 41,760 barrels, based on actual gauge of 1620 barrels oil during first hour and 1740 barrels oil during the second hour test, with a total depth of 2322 feet. The gauge was taken March 28, and the well remained shut in until the April proration period, having earned a daily production quota of 1822 barrels. However, the actual production during the first four days in April averaged 5000 barrels daily, and increased to 6462 barrels daily during the 24-hour period ending 7 a. m., April 4, because of difficulty in regulating the flow of oil. Since the completion of the well Magnolia Pipe Line Company has installed a three mile, six-inch loop on the north end of its four-inch carrier, extending from the field to refinery and tank farm at Luling.

Larger casing than normally used in the field is being installed in some of the offsets drilling against the Roamell well. Should one of these strike the crevice at the right spot a new production record may follow. Magnolia Petroleum Company's Roamell 2 is drilling below 1400 feet, and Roamell 3 is drilling below 600 feet. United North & South Development Company's Dix 3, offset to the freak producer, is drilling at 1300 feet, and Dix 4 is drilling below 500 feet. Gulf Production Company et al's Dix-McKeam 1, an offset to the producer, is drilling ahead after cementing surface pipe.

Two more attempts for oil production in crevices on the east side of the Darst field are to be made by Magnolia Petroleum Company, which is rigging up for Appling 2 and S. M. Roamell 4. This company's Appling 1, which was completed in crevice October 19, 1929, is pumping 1050 barrels daily, and S. M. Roamell 3, an offset, is flowing 1000 barrels daily. Cranfill-Reynolds Company's Appling 2, which is also producing from the same underground fracture, swabbed 240 barrels daily at 2250 feet, is installing standard rig to deepen. Magnolia Petroleum Company is rigging up Fannie Nixon 1, located along the west line of the L. W. Alexander Survey, A-41, and about one and one-half miles east of the Darst field, to take another long shot for production. This 200-acre lease expires June 4. Proration restrictions have not been applied to these east side crevice wells.

Fort Bend County

Houston. — Pure Oil Company has spudded its wildcat test, Jackson Brown et al 1, which is located near Pilant Lake, Fort Bend County, on a geophysical prospect. The location of the well is about five miles east of Long Point dome, where Texas Gulf Sulphur Company is operating a new sulphur mine, and approximately six miles north of Nash Dome, where oil production has been developed by Rycade Oil Corporation.

The exact measurements of the location of the wildcat are 1481 feet south and 1900 feet east of the northeast corner of the Herman Hale 548.92 acres, William Barrett & Abner Harris Survey.

Brazoria County

Houston. — The Texas Company was drilling hard shale and lime at 2520 feet early this week in its wildcat test, O. F. Ewing 1, which is located 1½ miles north of Manvel, Brazoria County. The well is being drilled following favorable indications through geophysical work. It is in Lot 29, Block E, Allison Richey Subdivision, H. N. Little Survey.

Houston.—Marrs McLean has completed Cade 17 at High Island as a 1200-barrel flowing well. The producing sand was encountered at 3744-66 feet. There are only two rigs in operation on that dome. The other is that of Gulf Production Company now drilling Smith 5-A. That well is down to 4953 feet in sand and shale.

Humble Field Active on West Side

Houston.—The only completion of the past week in the Humble field was Southern Drilling & Production Company's Alco 1, located on the northwest side of the field, 50 feet east of John Deering's Bissonett 5, in the John B. Jones Survey, Riverside Subdivision. Two joints of screen were set at 3978 feet, and the well came in flowing 1000 barrels of 41.6 gravity pipe line oil daily.

The west side is the most interesting portion of the Humble field at present, with several wells drilling in hope of finding the prolific sand discovered recently by Sun Oil Company's Bender 3 at a total depth of 3903 feet.

Rio Bravo Oil Company's Fee 1, located 1250 feet southeast of the Sun Oil Company producer, in the Bender South Addition, Humble townsite, was drilling shale at 3848 feet on April 8. The producing well just mentioned logged the top of the oil sand at 3858 feet. It came in January 28, 1930, flowing 1800 barrels of 31.5 gravity pipe line oil daily, and has not decreased greatly in production.

Sun Oil Company's Bender 4, located 600 feet north and 200 feet west of No. 3, was drilling shale at 4685 feet on April 8. Houtex Production Company was drilling at 4740 feet in rock in O'Boyle 1. Lee & Wilson's Bender 1, located in Block 3, Bender Third Addition, was drilling at 1525 feet. P. G. Benedum's W. L. Foley 1, J. Ryan Survey, was drilling gumbo at 1000 feet. Continental Oil Company's Kattar 1, located in Block 1, Bender Third Addition, was drilling sandy shale at 4100 feet. Showers & Moncrief's Hall 1, Block 2, Bender Third Addition, reached depth of 5057 feet in heaving shale, and a large portion of the hole was lost because of the heaving formation.

Only a few drilling operations are in progress on the other flanks of the dome. Average daily production at Humble during the week ending April 5, according to the American Petroleum Institute estimate, was 20,300 barrels, as compared with 19,100 barrels daily the previous week.

New Shallow Depth From East Hackberry

Houston. — A new producing horizon was discovered at East Hackberry, Cameron Parish, on April 8 when Calcasieu Oil Company completed Watkins 17 as an oil well flowing 1200 to 1500 barrels daily at 2710 feet. A 12-foot joint of screen was set in the sand.

This well, located in the south portion of the field, furnishes the shallowest production obtained on that salt dome. It is located 2088 feet east and 162 feet south of the northwest corner of Section 24-12s-10w. Heretofore all production at East Hackberry has been from depths ranging from 3850 to 4200 feet, with producing wells located principally along the south flank of the dome, but extending also partially around the west and east flanks.

This field has been developed principally by the Calcasieu Oil Company; and the ownership is shared equally with Union Sulphur Company and Magnolia Petroleum Company. It was discovered by seismograph, and production was established there in the fall of 1927. There was little development in 1927, but in 1928 the field activity included drilling of 37 wells, of which 22 were oil producers with combined initial production of 27,076 barrels, and 15 were failures. Production of the field in 1928 amounted to 1,176,600 barrels. During 1929 there were 19 completions in the field, including 11 oil producers with combined initial production of 12,125 barrels, and eight failures. Production in 1929 amounted to 1,171,050 barrels.

During the week ending April 5, 1930, the average daily production at East Hackberry was 1450 barrels, as compared with 1200 barrels daily during the previous week.

Brazoria County Test Has Gas Show; Drilling

Houston.—Shell Petroleum Corporation is drilling deeper in its wildcat test, Blakely-Winston 1, located two miles northeast of Danbury, Brazoria County, following a test which showed dry gas. Total depth of the well was 4823 feet, and the top of the sand was tested at 4812 feet; 9⅝-inch casing was set at 4786 feet, and to make the test two joints of 6⅝-inch screen were set on a full string of 6⅝-inch casing.

The well made several heads of gas, [illegible] registered pressure of 700 pounds betwe[illegible] tubing and the casing. It showed a lit[illegible] oil with the wash water.

This wildcat is the first test of a s[illegible] dome prospect found through use of se[illegible] mograph. Several good oil showings ha[illegible] been encountered, and the well produce[illegible] some 22.4 gravity oil, although not in commercial quantity, at 1567-77 feet.

Two Wells Completed at Esperson Dome

Houston.—Average daily production of the Esperson field, Liberty County, was 4500 barrels during the week ending April 5, as compared with 4550 barrels daily the preceding week, according to American Petroleum Institute estimates.

During the past week there were two well completions in the field. Cranfill-Reynolds Company's Moores Bluff Corporation 2 came in flowing 325 barrels of 21.5 gravity oil daily when two joints of 4½-inch screen were set in sand logged at 2293-2342 feet. That well is in the M. Duncan Survey on the southwest edge of the field.

The other completion of the week was Yount-Lee Oil Company's Moores Bluff Corporation 2. That well was drilled originally to 6685 feet, but was sidetracked at 1800 feet, and one joint of screen was set at 3347 feet. The well began pumping 85 barrels of oil daily.

Legal Aspects of Directional Survey of Wells

By A. T. PARSONS
Consulting Engineer, Rieber Instrument Corporation

THAT many line wells drift so far from the vertical as to enter the producing sand at points outside of the owner's property has been tacitly admitted for many years. Nevertheless a rather exhaustive search recently undertaken failed to disclose an instance where a case involving this point had actually come to trial.

This has been partly due to a realization by operators that any attempt at enforcement of strict property rights would hit all concerned about equally. More largely it had been on account of the lack, until recently, of accurate methods for making directional surveys. It has been felt that any attempt at adjudication would simply result in a mass of litigation with no corresponding benefit.

A number of operators have abandoned the system of basing their payments to drilling contractors on casing lengths, etc., and are computing actual vertical depth from the findings of surveys of inclination. At the present time such payments are based on the specific provisions of individual contracts, but it is in precisely this way that trade usages have been established in part. From this to a definite legal standing for surveys of both inclination and direction is quite a step, but it is the kind of step that has frequently been taken. This is not to say that there is danger of court calendars becoming congested due to the filing of cases involving line wells. For most existing wells the rule of letting sleeping dogs lie will probably continue to be applied.

New wells are, however, a different matter, although even here litigation is not likely to result. Most operators now have agreements with operators of adjoining property providing that wells shall be drilled not less than a specified distance from the property line. To make these agreements really effective they could be amended to provide that surveys of the course of a drilling well should be made at intervals by a responsible third party, the findings of the surveys to be the exclusive property of the operator of the drilling well except when they showed the well to have crossed the line into adjacent property, when the holder of that property should be notified. Such an agreement would be to the interest of all concerned and should almost completely prevent litigation.

California Gas Law Enforcement Revives Interest in Repressuring

By BRAD MILLS
Staff Representative

ENFORCEMENT of California's gas conservation law at Santa Fe Springs and assurance that operators in other critical fields will be enjoined from blowing this commodity into the air have revived the subject of repressuring, or storing gas in depleted sands; especially so, in view of the fact that the use of gas for this purpose is recognized by the statute and recommended by the state oil and gas supervisor.

Los Angeles basin has been the center of extensive repressuring operations for several years, a survey having revealed the development of an advanced technique, as compared with early attempts to store surplus gas before making a close study of field conditions.

Major operators have long recognized the value of repressuring where conditions are almost ideal, but there has been a doubt all along concerning the wisdom of storing gas underground where co-operative efforts are not in effect. The nature of field development in the intensely drilled areas has been a discouraging factor in many instances, most of the pioneering having been done in fields where the companies taking the initiative control large leases or have working agreements with offsetting operators.

Several years ago gas lift methods almost became a fad in California, and it was from this method of production that operators learned something of the effects of storing or repressuring with gas. It is not the purpose of this article to touch even remotely upon the various gas lift methods, except to reveal the influence of the practice several years ago in townlot fields upon repressuring in similar areas. Lifting oil with gas was the indirect means of retarding the storing of surpluses in several fields.

One operator in a townlot district made elaborate preparations for producing several wells with compressors. These producers were located on a small lease, gas being injected into an inside well, with the view of increasing production from the company's surrounding wells. Instead of increasing the production of all wells in a fairly uniform manner, the injection raised the yield of one or two producers and lowered the flow in others. A careful check revealed a sharp increase in the production of neighbors' wells, indicating that injection of gas on small leases might force the oil away from a small nest of producers and into other producers which were clearly not entitled to an increased yield at the expense of some enterprising operator.

The experience gained in gas lift operations proved that repressuring is not practical on small leases unless several operators co-operate fully. Intensely drilled fields have been chiefly responsible for the surplus of gas, but fortunately some of the older fields have proven satfactorily for storing some of this excess and for forming a basis upon which much future repressuring will be based. In each of a few instances one company has owned a lease large enough to store gas with the assurance that most of the profits derived from the process would fall to the rightful beneficiary.

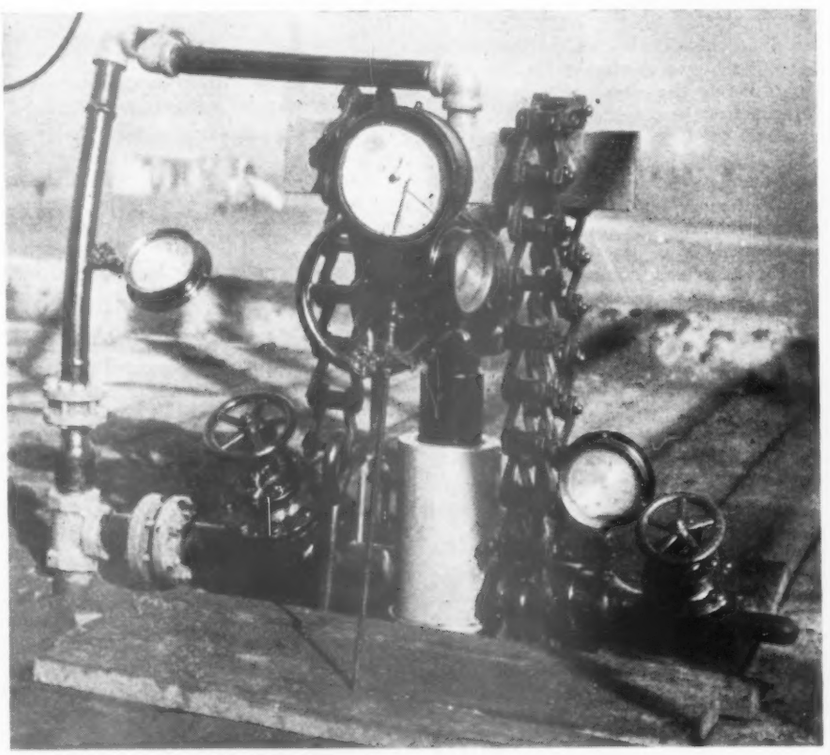
Repressure Entire Field

In one field the two leading companies combined to repressure practically the entire field, these operations and the results forming perhaps the most comprehensive injection scheme yet started in California.

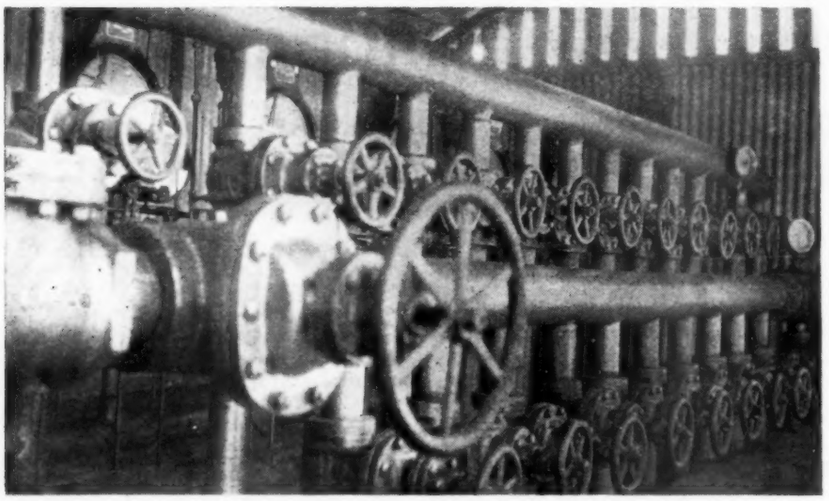
The gas conservation law states that whenever the state oil and gas supervisor shall find that it is in the interest of the protection of oil or gas from unreasonable waste, it is lawful for the operator to enter, with the approval of the state oil and gas supervisor, into agreements for the purpose of bringing about the co-operative development and operation of all or parts of the field involved, including the return of natural gas into the sands, either for repressuring or storage purposes. This clause promises to be directly responsible for a greater oil production than would otherwise be possible, with repressuring and storage of gas in the older fields to show an increase.

One of the first repressuring experiments to be conducted on a large scale in the Los Angeles basin was started by Union Oil Company and Shell Oil Company in the Dominguez field in 1926. These companies control the major portion of the field and found the situation nearly ideal for gas injection purposes.

Gas injection at Dominguez has not been strictly a repressuring and storing operation, although it is much nearer this than a gas lift practice. The field has been producing while the storing of gas has taken place, thus affecting both the day-to-day and future production of gas and oil. The system employed requires a key well for the benefit of surrounding producers. Gas was forced into the key well at any desired pressure, spreading



Typical hook-up of injection well at Dominguez



Union Oil Company's header installation for injecting gas at Santa Fe Springs

all through the oil sand and bringing about a great recovery of oil from producing wells. Since the results are both immediate and permanent it has been possible to compare the decline curves with those that would have been recorded had the field taken the natural course.

Early experiments were conducted on the equal pressure theory, with the key, or injection, well surrounded by a series of producers, all at a given radius. Wells in the field had been spaced on each corner of a 610-foot square, and by using a well in the center of this square it was thought that the corner wells would share about equally in the benefits of gas injection.

A study of the action of the four corner wells revealed that the ideal surface arrangement does not always make a practical sub-surface layout. The gas followed the course of least resistance, increasing the gas production in one well and affecting the other wells in various ways. After the pressure had been maintained on the key well for a considerable period, results were checked and found none too satisfactory, and certainly far from uniform. Channeling seems to have been an important factor, accounting for a large quantity of gas and little oil from a few producers, an improved yield from some wells and practically no improvement in others. Gas broke through the square and affected production in distant producers to a greater extent than in a few inside wells. It was not unusual for a well 600 feet from the injection well to respond to the repressuring more than a producer only 300 feet away, necessitating frequent change of location of the injection well.

Dominguez Experiment Educational

Much has been learned about repressuring from operations at Dominguez, the necessity of co-operative efforts having been obvious from the beginning. Union Oil Company and Shell Oil Company have injected between 7,000,000,000 and 8,000,000,000 cubic feet of gas during three and one-half years of repressuring and are still interested enough to continue the practice. Rock pressure has not been raised to an extremely high figure because the field has been producing during repressuring operations.

About three years ago, Standard Oil Company started repressuring a part of the West Coyote field and has injected from 1,000,000 to 4,000,000 cubic feet of gas daily over the entire period. The company has used outside wells for injection purposes, with the view of keeping out the water and forcing the oil toward the center of the structure.

West Coyote has been producing for about 20 years and has yielded around 90,000,000 barrels of oil. It was originally a large gas producer and has shown a good response to repressuring methods. Key wells are used for injecting the gas, the location having been determined by the lay of the leases and from action of producing wells. Standard Oil Company owns large leases in the field and will derive all the benefits from the repressuring and storage of surplus gas.

The company has been able to check results of gas injection through increased production of nearby wells. This increase has been sufficient to make the shutting in a several wells possible without loss of field production. The gas has been injected into the second, or most productive, sand, which is fairly porous and seems to retail the gas satisfactorily.

Repressuring of the Brea Canyon field, an area which has produced for 32 years, has revealed many interesting problems to be overcome. One of the largest operators attempted to store surplus gas in these nearly depleted sands, but after more than a year has been unable to check results with accuracy. The main sand seems badly channeled and has shown many freakish tendencies. After gas had been injected into a well for some time, a blowout occurred at the surface, the gas coming out in a creek bed some distance from the point of entry.

The condition of wells in this field has been largely responsible for the failure to obtain satisfactory results. The casing is in poor condition and probably has given way in wells soon after pressure has been built up. Logs of the wells are vague, and in many cases are entire missing. In repressuring the sand, operators practically guess at what they are doing. The casing on many of the early completions was cut off at the top and set in cement blocks. This cement was porous and probably is not retaining much of the gas sent into the injection wells. The well of another company a considerable distance from the point of injection recently showed a sharp increase in production which was traceable to the repressuring operations. Thus it is obvious that channeling in the very old fields is to be expected with co-operative repressuring the only practical mode of operation.

Union Oil Repressures at Santa Fe Springs

Union Oil Company's gas storing plan at Santa Fe Springs is an example of successful repressuring in an intensely developed area, where gas from new and deeper sands is forced back into shallow depleted sands. The company made efforts to bring several operators to a common agreement, but after these negotiations failed launched a repressuring campaign of its own. Late in 1928, when the plan was started, several hundred million cubic feet of gas was being blown to the air, the natural result of development of the Buckbee and Nordstrum zones. With many producing wells in the Foix and Meyer zone, the company diverted the flow of its surplus gas from the air to several injection wells.

Fortified with some of the largest leases in the field, Union Oil Company was able to use wells a good distance from the property line for injection purposes. Pressures in the depleted zones had been reduced to a minimum, many wells taking the gas from the high pressure traps at 300 pounds without the use of compressors. Nearly 20 wells were used for injecting the gas into the Bell and Foix zones, as much as 25,000,000 cubic feet daily having been sent back into the formations.

More than 1,000,000,000 cubic feet of gas has been forced into the Bell and Foix zones and there is no doubt as to definite beneficial results. Production has been increased in many wells, while the zones have shown much more life than immediately prior to repressuring. Many wells formerly on the pump have started flowing, with many small flowing wells showing sharp increases as the result of increased gas pressure. Development of the lower zones has been responsible for the shutting in of many shallow wells, making the present injection of gas more a storage proposition than a current repressuring.

Union Oil Company stored about 600,000,000 cubic feet of gas in the old Brea-Olinda field and is now following this injection with the storage of oil. The zone utilized for this purpose is a coarse, gravelly formation and readily absorbed the gas. The company controls a very large lease in this field and will profit almost exclusively from the operation.

During recent repressuring operations,

(Continued on page 72)

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News From California Fields

BRAD MILLS, *Staff Representative, Los Angeles, California*

California Production Lowest Since Deep Drilling Started

LOS ANGELES.—California production has dropped to 609,000 barrels, the lowest figure since deep zone development started the prolonged wave of overproduction, but developments during the past week were mixed and point to slightly rougher sailing as the output of light oil is further reduced. Conditions have improved so rapidly and production dropped so sharply that fear of at least a mild reaction seems well founded. Enforcement of the gas saving law at Santa Fe Springs and statewide curtailment have been very effective, but it is going to require much ingenuity to keep all fences up and production down.

Despite the fact that the restraining order is in full effect at Santa Fe Springs, it has been impossible to make the order completely effective. Many smaller operators have been slow to shut in their wells, especially where such an action would reduce production to an unprofitable level. Production of oil is about 128,500 barrels and the gas flow around 350,000,000 cubic feet. This is about 50,000,000 cubic feet above the allowable figure set by the Superior Court.

The state appears anxious not to work a hardship on any operator and for this reason has tolerated a waste far above that anticipated by the preliminary injunction. The problem is such a huge one that state officials are worried over the proper procedure. Strict enforcement of the restraining order in every instance will result in an unfavorable reaction and might throw the matter into the Supreme Court, conservative leaders believe.

Smaller operators have a very limited outlet for gas and are handicapped in their efforts to produce a proportionate share of the field total. Allowed about the same gas-oil ratio as larger operators who have better outlets for gas, many small operators find this handicap a difficult problem to overcome. This seems no fault of the injunction, however, and if waste is eliminated under the present edict, many wells will be killed.

A form of the proposal to pool gas on the basis of available outlets, a plan which was formulated last summer and turned down by several independents, has been revived, in an effort to create a market for gas on an equitable basis. The original plan embraced several fields besides Santa Fe Springs, but the new proposal includes only gas from the one field. Due to the decline of production and the likelihood that a surplus of gas will not exist for a long period, major operators who sponsored the original cooperative plan have withdrawn their offer to contribute $230,000 each annuafly for the maintenance of the pool. They will, however, use all available field equipment for repressuring with the surplus gas, thus increasing the allowable gas production by about 50,000,000 feet. If such a plan is inaugurated, operators having no sales contracts for gas will immediately share in the benefits by increasing oil production in proportion to the increased gas flow. Herbert R. McMillan, conservation leader, is working to complete the plan but no definite action has been taken.

April 2 Deadline

Operators were given until April 2 to have gas production to the allowable total of about 300,000,000 cubic feet. On that date there was still a considerable waste but the reaction of the court has not been made public. The committee of three experts appointed by Judge Hazlett to assist him in the equitable enforcement of the injunction have been working on a series of plans which are intended to improve conditions in the field.

A modified form of unit operation is being allowed where any three or more operators having five or more leases in the townlot area pool the leases and share proportionately the returns. Varying conditions make this form of operation unacceptable to certain operators who have a better gas-oil ratio than their neighbors.

Available gas outlets have been reduced sharply, as the result of the rapid decline in the number of drilling wells and a smaller demand from distributing companies. Actual gas required probably does not exceed 150,000,000 cubic feet, as against almost twice this total on January 1.

Operators will be given another hearing by Judge Hazlett on April 14, and at this time a check of results will be made. It is expected that operators not in sympathy with provisions of the gas conservation law in general will make a plea for further modification of the present injunction. The claim has been advanced that many wells have been injured permanently by shutting them in to comply with the injunction. Regardless of the changes made in the order, it is not believed that a larger gas production will be allowed.

Potential production of California has been placed at 1,081,382 barrels by the fact-finding committee and the allowable placed at 603,289 barrels. This is an average cut of 44.3 per cent. All fields in Group No. 1, which includes the flush and semi-flush areas, have been cut a flat 43 per cent; and the various fields in Group No. 2 have reduced an average of 40.3 per cent. Many fields in this group were not reduced at all, with the percentage of reduction ranging up to 100 per cent for a few fields now shut in. Kettleman Hills was reduced 79.2 per cent to 13,500 barrels.

Hearing Postponed

Hearing of the state's action to stop gas waste on the North Dome at Kettleman Hills has been postponed until April 16, Superior Judge S. L. Strother, sitting at Hanford on April 2 having granted the delay. Every operator on the North Dome has been named a defendant in the action. An adverse decision for the state in this trial would cause much confusion and probably would throw the entire matter of gas conservation into the State Supreme Cout.

The case against Long Beach operators, all defendants in the State's action to stop gas waste at Signal Hill, will come up for hearing in the city of Long Beach, April 7.

Refinery runs are being held to about the level of March and are far below those of last year. Substantial reduction of crude stocks will be slow as long as production remains above or hovers around actual consumption. Seasonal demands may increase refinery runs, but if the demands are genuine and crude stocks are decreased and gasoline stocks are lowered, a stronger market tone will result.

Belief that enforcement of the gas conservation law in all fields where gas is being wasted will result in a shortage of light crude has been advanced by operators and refiners who deal on a more or less day-to-day basis. During the past two years, independent refiners having limited storage facilities have fared well because of the huge overproduction, but a further reduction in light crude threatens to cause a superficial shortage, according to most recent claims. Gas is being wasted only in fields producing refinable crude, enforcement of the statute naturally resulting in a sharp production drop.

Major refiners, with a single exception, have large quantities of light crude in

orage—at least enough to meet their demands in the event production drops to point below 600,000 barrels. They will enabled to draw on these stocks, and th current production caring for the ilk of their needs, they should not materially feel the effects of a consumption excess of production. Smaller refiners sist they will be forced to pay a remium for refinable crude, immediately llowing a further sharp drop in the output of refinable crude. Whether improved nditions in the industry will offset the lleged ill effects of a smaller production light crude is a question which may ot require an answer, due to the possibility that an actual shortage may not evelop.

Over-Reduction a Myth

Opponents of the gas saving law, and urtailment in general, claim that the endulum is swinging back too far—that he almost sudden reaction from a long eriod of overproduction may reduce production too much. Curtailment and enforcement of the gas saving law certainly have been an effective combination and as the output continues to drop, rumors of underproduction are heard.

Flexibility of the gas conservation law should care for any shortage of oil in California, and it is largely upon this fact that conservative operators base their belief that the cry of a shortage is only a myth. The permissive clauses of the statute are supposedly liberal, the law expressly stating that the waste must be "unreasonable." Before the law was passed, its sponsors insisted that if it was necessary to waste gas to produce a sufficient quantity of oil to meet all needs, then there would be no unreasonable waste and the blowing of gas to the air would be permitted.

If small refiners really reach the point where they can not obtain crude to run their stills—a highly doubtful supposition —they have the right to appeal for a larger production of light crude, according to the more conservative authorities.

Even though a production considerably below consumption might work a hardship on a few, such a condition would result in the reduction of the present huge stocks. Major operators have been working toward this end for some time and it can be accomplished only through curtailment of light oil.

Further decreases in light oil production probably will result in a greater production of heavy oil. The gas saving law has no jurisdiction over the operation of leases producing little gas, and for this reason a greater output of heavy oil which may be refined with fair success is possible.

If it becomes necessary to fall back on the heavier grades of crude to meet refinery requirements of the smaller refineries, the trend toward cracking processes probably will be more pronounced. Enough gasoline has been produced from the easily refined light crudes by straight run methods to meet all requirements. There has been little reason for attempting to get more gasoline per barrel of oil during the past few years, due to the ease with which the crude was obtained.

Foreign and Atlantic Coast domestic demands for California products have been slightly below the estimates of last fall, with poor business conditions along the Atlantic seaboard accounting for a part of the drop. It may develop that the estimates of California's actual requirements of crude, made to determine the basis of curtailment, are slightly too high. In such an event, the drop in light oil production may not cause the expected inroads into storage.

The gasoline market has become so closely connected with production of crude that a change in one immediately affects the other. Surplus crude has been used during the overproduction period as a weapon to weaken the gasoline market. One of the chief objects of the curtailment movement has been to strike at the unstable gasoline situation by placing production of light crude under control. How well this has been accomplished will be determined by developments during the next few weeks.

Santa Fe Springs Potential Now Less Than 200,000 Barrels

LOS ANGELES.—Santa Fe Springs now presents little of its spectacular appearance of a few months ago, with less than 70 active drilling wells, fewer completions, a smaller average initial yield and a rapid decline of the older wells. The field does not threaten a sudden collapse but there is not the remotest chance that it can stage any sort of comeback from any of the known producing zones.

Enforcement of the gas conservation law has been responsible for the most recent drop, but it is extremely doubtful whether the field could make 200,000 barrels if all wells were opened at once.

Operators have changed their plans and are now completing most of the wells in the Buckbee and O'Connell zones. This rather sudden switch seems to eliminate the Clarke zone as a future factor, although at some later date, when the Buckbee and O'Connell zones decline further, the deeper sand may again be sought.

Of the seven wells completed during the past week, four were finished in the Buckbee zone, two in the O'Connell sand and only one in the Clarke. Most of these wells were originally intended for the Clarke sand but the change seems to have been satisfactory. Average initial production of the Buckbee zone completions was 1250 barrels, an unusually high figure.

General Petroleum Corporation completed a trio of wells, all in the Buckbee zone. The best of the three was Santa Fe 152D, which was completed as a 1475-barrel producer at 5498 feet. Santa Fe 160A and Santa Fe 160D were 600-barrel completions, both having been completed at 5940 feet.

Star Petroleum Company completed No. 3 as the best well of the week, the new producer coming in from the Buckbee zone at 6000 feet. Flowing from only 72 feet of sand and producing clean oil, this well gives the sand a better appearance.

The lone completion in the Clarke zone was Standard Oil Company's South Whittier Community 29, a 500-barrel producer at 7950 feet. Flowing from more than 450 feet of sand, the performance of this well indicates a questionable future production for the Clarke zone.

The lower portions of the Buckbee and O'Connell zones now seem the most logical completion points and operators near the center of the field will not be slow to try these levels. During early development of the former, wells were completed chiefly in the top of the sand. Belief that bottom water was a serious problem kept the bottom of the sand more or less intact in some parts of the field.

George F .Getty's Baker 36 is now the deepest drilling well in the field, coring ahead at 8950 feet. Wilshire Oil Company will run a string of casing in Baker 4-A, which has been drilled to 8800 feet, for a test of the lower Hathaway zone found in Oscar Howard's Hathaway 7.

Completion of the 69 drilling wells will be largely a matter of choice between zones, location of the various wells to determine in which sand they will be finished. Inside wells have the choice of the Buckbee, O'Connell and Clarke zones, while the outside tests have only the last named for a finishing point.

Kettleman Hills Drilling Revival Problematical

Coalinga, California.—The revival of drilling operations at Kettleman Hills, which seemed imminent a few months ago, now appears questionable and may not take place until better outlets for gas are developed. After the completion of Petroleum Securities Company's Felix 1, operators resigned themselves to at least a modified drilling campaign. Threatened enforcement of the gas saving statute and the possibility that the North Dome may not be as large or productive as originally thought have dampened the enthusiasm of a few operators who were prepared to spend around $250,000 for drilling each well.

The theory that Kettleman Hills is ostensibly a gas field is gaining ground, one geologist estimating the oil held

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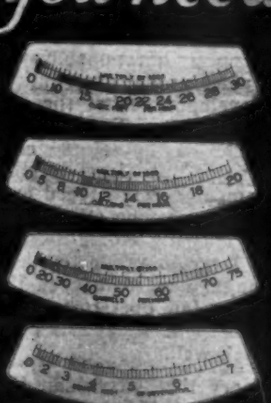

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solution at about two per cent., with e remainder of the recoverable volme gas. If such a theory proves corct, production will be chiefly gas hen the pressure has been relieved.

General Petroleum Corporation did t test Ochsner 2, Section 20-22-18, 7130 feet, as originally intended and now drilling ahead at 7160 feet. The rmation is showing a sandy shale and reaks of oil sand.

The four producing wells are flowing about 12,600 barrels of oil and a small quantity of water. Continental Oil Company's Elliott 12-8 is now flowing at a maximum rate, production running around 4800 barrels. By reducing the flow, gravity of the oil has increased to 62.3 degrees. The well is making about 40 barrels of water. Standard Oil Company's No. 8 is producing 3750 barrels of 61.3 gravity oil and about 55 barrels of water. Milham Exploration Company's Elliott 1, the discovery well, is flowing 2850 barrels of 60.1 gravity oil and a negligible quantity of water. This well has been producing steadily for more than 18 months. Petroleum Securities Company's Felix 1 has declined to 1200 barrels, the flow being accompanied by about 50 barrels of water.

Little drilling is anticipated on either the Middle or South Dome, the latter having been temporarily eliminated through the abandonment of Ohio Oil Company's Smith 1. The risk and expense involved will hold field development chiefly to the North Dome, with the Middle Dome coming in for increased attention as the need for light oil becomes more acute.

The city of Coalinga early went on record as favoring the development of the field and is still working toward this end.

Pier Drilling May Double Elwood Output

Santa Barbara, California. — Pacific Western Oil Company, already a large producer in the Elwood field, has completed Goleta 92-4, a pier test, with an initial production of 7500 barrels of 38 gravity oil, making it the largest well in California. This company recently completed Goleta 92-2 as a 6500-barrel producer, breaking all previous records for the field and proving the axis of the structure to run outside the mean high tide line. Drilling on piers has reached a high state of perfection in the district and probably will be responsible for doubling the ultimate yield of the field. Elwood has been one of the most remarkable fields ever found in California, having a potential production of about 70,000 barrels from an average depth of about 5400 feet. Barnsdall Oil Company recently completed two wells with a combined initial production of 6500 barrels, already having the largest production in the field.

Long Beach in Own Class in California

Long Beach, California.—The claim that "Long Beach will be a good field long after other Los Angeles basin fields are forgotten" seems to be well founded, judging from the steady performance of the former and the spasmodic action of some of the latter. The steady stream of completions and the slow decline of older wells have combined to give the Long Beach field a tenacity never equalled in California and place the 1400-acre structure in a class all by itself. Activity in the southeast sector, where several large wells have been completed during the past few months, is not increasing but new locations are practically keeping pace with completions. Several good wells have been finished at various shallow levels all over the field, the older zones now offering almost as much promise as the intensely drilled deeper zone.

Rincon

Ventura, California.—General Petroleum Corporation has gone out of the oil sand in Ferguson 2, a tideland permit test in the Rincon field, and is drilling ahead at 3250 feet, after obtaining a production of 800 barrels at 3110 feet during a water shutoff test. This well is located on an 1800-foot pier in the Pacific Ocean and practically proves the small production along the coast to be coming from the flank of the structure. The test opens a wide strip of the ocean to drilling through the medium of tideland permits and may eventually make the Rincon field a market factor.

Round Mountain

Bakersfield, California.—Continental Oil Company will drill a wildcat well on Section 6-29-30, southeast of Round Mountain and north of Edison, following the blocking of a large acreage. Several wells have been drilled near the new holdings of the company, several of which have obtained good showings. General Petroleum Corporation got a small production in a test near Edison, but was unable to effect a water shutoff and abandoned the well.

Venice

Los Angeles.—Field development at Venice will depend largely upon the results of the first few completions, with the addition of small producers or one or more outright failures to dampen the enthusiasm of both a group of 60 now seeking permission to drill the restricted area and the large independent operators now getting in good foothold in the beach district.

The Ohio Oil Company, discoverer of the field, is nearing the producing zone with two wells and should reach the objective sand within a few days. Recreation Gun Club 2, a direct offset to the first well, is drilling at 5800 feet, with Howland 1 following closely behind. The former is apparently located higher on structure than the discovery well. Residents of Del Rey, a beach community about one mile southeast of present production, are becoming restless and probably will make an effort to remove drilling restrictions from this popular residential district. Oil from the discovery well contains a higher percentage of sulphur than is found in other Los Angeles basin fields, the crude also being much lower in gravity then the average of other districts.

Venice Locations

Ventura, California.—Ventura Avenue, until recently one of the sensational deep fields of the state, has not been responsible for more than routine developments for several months, having lost deep production honors to the Los Angeles basin district. Several new locations have been made and active drilling operations have increased to 34, but the field has lost nearly all of its sensational form of a few years ago. Associated Oil Company and Shell Oil Company, principal operators, are each drilling more than a dozen wells and will maintain about this average during the remainder of the year. The depth of completions gradually increased from around 6000 feet to nearly 8000 feet, but the best producers are obtained considerably above the maximum depth.

North Belridge

Taft, California.—Belridge Oil Company will make a production test in No. 15, an important well in the North Belridge field, as soon as the finishing touches are made to the surface equipment. This well is regarded as the most important test of the year in the San Joaquin valley, having found the Temblor sand, which produces in the Kettleman Hills field, just above 5000 feet. The sand has almost exactly the same qualities as that found in California's great light oil field and if the well makes a large producer the value of a large portion of the San Joaquin valley will be changed. A very high gas pressure was developed between the 6⅝-inch shutoff at 4934 feet and bottom at 5088 feet, the Christmas tree assembly alone costing in excess of $10,000.

Midway Wildcat

Taft, California. — Coring steadily ahead, Standard Oil Company has reached a depth of 9600 feet in Mascot 1, deepest well in the world. This test is located in the Midway district.

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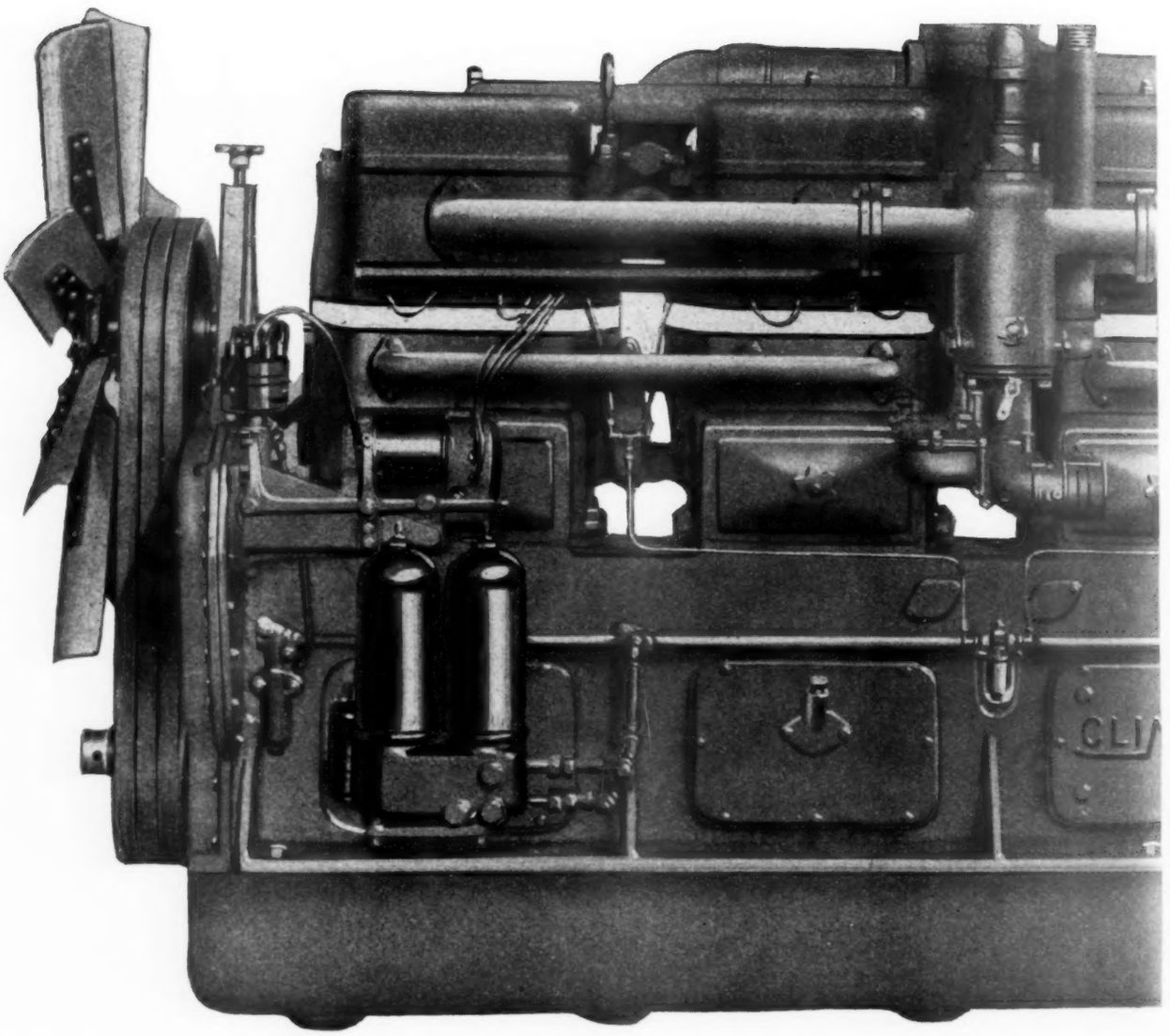

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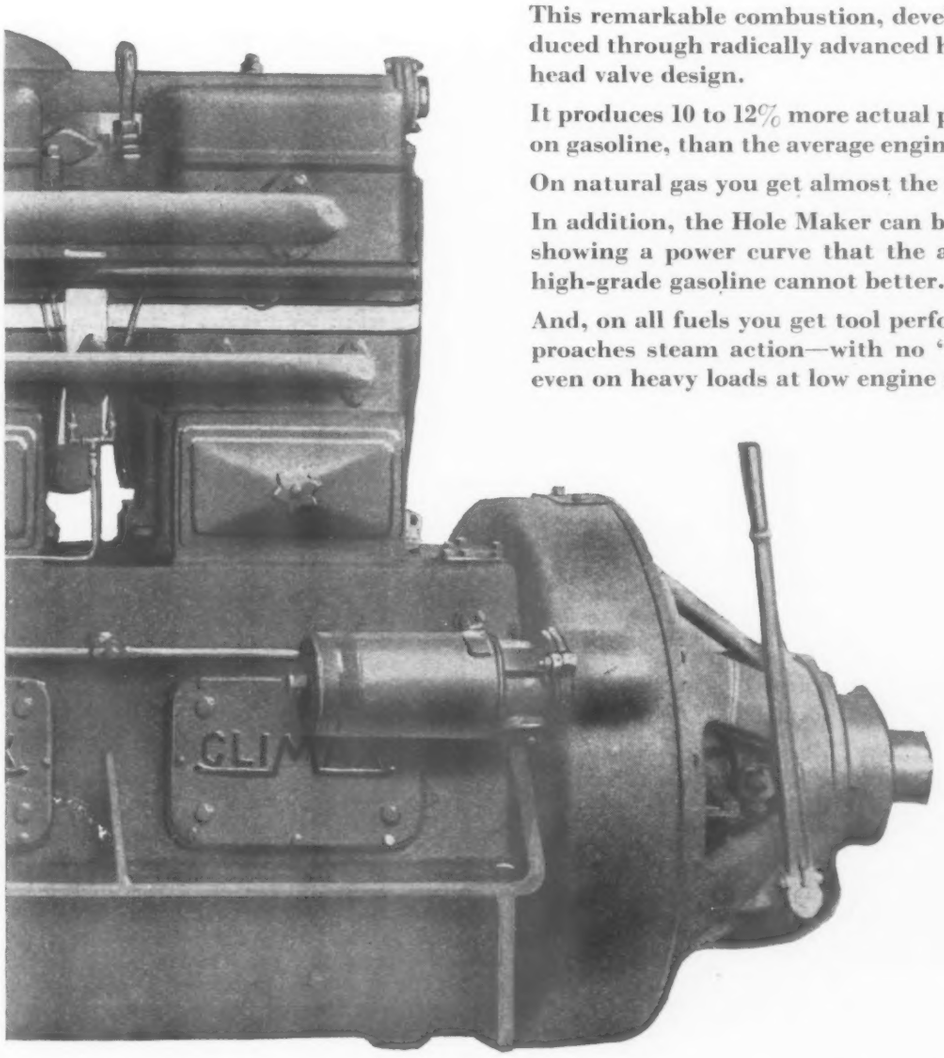

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Louisiana--Arkansas Field Notes

Cartersville Production Shows Rapid Decline

SHREVEPORT, La. — Developments during the last week still leave the future of the new Urbana field of Union County, Arkansas, in doubt. A second well was completed in that district during the week, being Marine Oil Company's P. Winn Estate B-2, Section 10-18-13, 400 feet south of the first producer of the area, at total depth of 3534 feet with three feet of sand and three feet of open hole. It flowed 345 barrels the first hour and 20 minutes through small chokes and then began to show salt water in large quantities.

When turned into the tanks after completion late Thursday afternoon, April 3, the well flowed 72 barrels of clean oil through one and a quarter inch choke for the first 12 minutes and in the next 10 minutes flowed 65 barrels of clean oil through a 61-64th-inch choke making 260 barrels for the first hour through that size choke. In the succeeding 20 minutes it made 85 barrels. The shake-out was .5 of one per cent and no water, the gravity being 20.6 at 87 degrees. Three hours later salt water appeared in quantities estimated at 65 to 75 per cent, with the well continuing to flow through the choke at the rate of 65 barrels hourly. It flowed 1205 barrels in the first 14 hours through a three-fourths-inch choke which was installed soon after the salt water appeared. The well was then opened wide and turned into the pit, for an hour and a quarter, flowing 75 to 98 per cent salt water. Again being choked and turned into the tanks it showed a 50 per cent shake-out of water.

Meantime the discovery well, Marine Oil Company's Thompson A-3 in the same section is still averaging 1000 barrels daily on the beam, 50 per cent salt water, at a depth of 3439 feet.

On the strength of the Winn Estate B-2 and Simms Oil Company's Simmons A-1, also in the same section, which is standing full of oil at total depth of 3532 feet and is being tubed and an electrical pumping plant installed. Standard Oil Company of Louisiana has started laying a four-inch gathering line from its Strong, Arkansas, station to the Simms well, a distance of approximately four and one-half miles.

The Simms Company is drilling at 2186 feet in Simmons B-1 in the same section. Lion Oil Refining Company is coring at 3804 feet in Ballard 1 in the same section after hitting a salt water sand at 3721 feet. In Section 4-18-13, Johnson and Gummer have shut down in Cargill 1 at total depth of 3825 feet, which is said to be the contract depth.

While there has been a noticeable slowing down of activity in the Cartersville field of Bossier Parish, Louisiana, and in the Zwolle field of Sabine Parish, Louisiana, during the last week, the latter field had two of its producing sectors in the east field connected by an 80-barrel pumper when Olsan Brothers put Leone 1, SE SE Section 32-8-12, on the beam at 2575 feet in chalk rock formation. This is the first producer in Section 32 and is a connecting link between producers in Sections 33, 34 and 35-8-12, and a three-mile western extension in Section 31-8-12 on the outskirts of the town of Zwolle. However, in Section 32-8-12 during the week O'Brien Brothers went to 2575 feet in Colquitt 1 to abandon it as a dry hole.

36-Barrel Pumper

In NE SE Section 31-8-12, Lion Oil Refining Company and D. M. Lide standardized Sabine Lumber Company 2 at total depth of 2224 feet, as a 36-barrel pumper. This is an offset to the same operators' Sabine Lumber Company 1 in the same quarter which was completed in the marl above 2200 feet as a flowing well and furnished the three-mile western extension of the Zwolle east field. However, in the same section Henshaw and associates abandoned Sabine Lumber Company A-2 at a total depth of 2651 feet as a salt water hole.

Benedum and Trees, whose operations in this territory are now carried under the name of the Loring Oil Company, appear to have two commercial pumpers in Section 34-8-12. Bowman-Hicks 3, NE SE Section 34-8-12, a western offset to Ohio Oil Company's Bowman-Hicks 1, NW SW Section 35-8-12, a 45-barrel pumper, is bailing at the rate of 75 barrels daily from chalk rock at 2363 feet. This is the well which recently made a 50-barrel head before plug was drilled. It is half a mile east of the Bowman-Hicks A-1, the original 12-mile eastern extension well of the Zwolle area. This well is now making, on latest 24-hour gauge, 2395 barrels of oil, a small amount of salt water having shown up since its recent revival.

Benedum and Trees' Sabine Lumber Company 1, SW NE Section 34-8-12, a half mile northeast of the big producer, is also showing for a well, having made a 70-barrel head while bailing at 2391 feet in chalk rock. This well may be standardized if it refuses to flow consistently.

One of the most interesting tests for Zwolle will be one of three locations announced for that district during the last week. Ohio Oil Company has steel derrick up for Bowman-Hicks 1, Account 2, in Section 6-7-13, almost midway between production in the Zwolle east field and the original Zwolle (Blue Lake) producing area in Section 14-7-14. If this test is a producer a big play is anticipated between the areas. H. D. Easton, the geologist, who mapped the Zwolle structure in 1922, and upon whose advice all the operations of R. L. Gay, Trustee, who found the pay in both parts of the district, were conducted, has consistently contended that both areas are part of one structure.

R. T. Dudney and associates made a location for Pearson 1 in Section 31-8-12. Seven miles northwest of production in the east field Jean Longoria and associates have placed derrick pattern for Belton 1, Section 31-9-13.

Cartersville recorded one producer and one failure during the week, both in the southwest part of the producing area. Tippett and associates completed Holmes 1, Section 36-23-12, at 3175 feet flowing 190 barrels daily through tubing. The test had sand from 3159 to 3164 feet. In the same section Lee Kennebrew and associates abandoned Garrett 1 at a depth of 3180 feet as a dry hole.

Cartersville Wells Decline

Cartersville's producers do not hold up. As an example of their decline the gauges for April 2 showed a combined daily yield of 3760 barrels while two days later the yield from the 20 wells in that area had dropped to 3495 barrels.

Marine Oil Company's P. Winn Estate B-2, Section 10-18-13, which was completed at 3435 feet, flowing clean oil for the first few hours through choke, after which salt water appeared, went dead Sunday, April 6, having been choked off by salt water. The well just before going dead was making at the rate of 100 barrels of fluid an hour through a choke, 75 per cent salt water.

Cartersville added its twenty-first producer April 6, when The Texas Company's J. W. Peyton 6, Section 30-23-11, was completed, gauging 101 barrels of oil daily flowing through two-inch tubing set with packer for the first 17 hours after tubing and packer were set. The well first headed on Saturday, April 5, and for the succeeding 24 hours made 85 barrels. Total depth is 3169 feet, six-inch casing having

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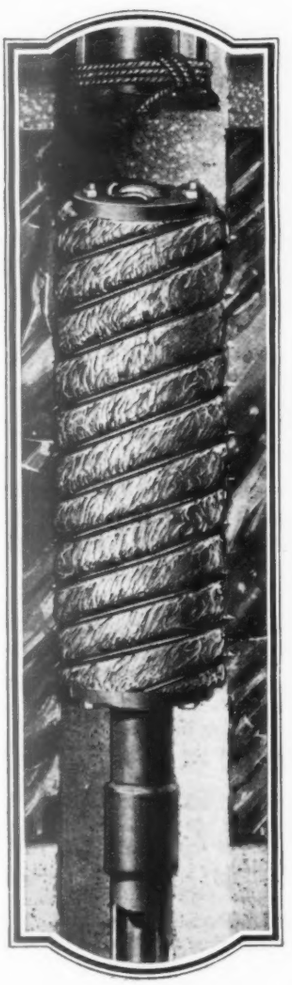

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been set at 3133 feet. Sand and shale were encountered from 3150 to 3169 feet.

Zwolle now has a total of 15 producers including the five producers of R. L. Gay, Trustee, in the older Zwolle area, whose average daily runs are around 810 barrels. The combined daily yield of these wells 4634 barrels for a typical day during the week.

After Johnson 1, a wildcat in Section 7-11-13, DeSoto Parish, Louisiana, had gone dead after being completed as a 12,000,000-foot gasser at 2865 feet, Benedum and Trees have deepened it to 2948 feet and tested 2,500,000 feet of gas five feet above that level through drill stem. The operation is now waiting orders.

Louisiana Gas and Fuel Company has completed a small gasser in the recently discovered second and deeper horizon of the Morehouse Parish part of the Monroe gas field, its Crossett Lumber Company 25, Section 29-21-6e, having been gauged as a 972,000-foot well with 850 pounds rock pressure, at 2391 feet. The original Monroe gas horizon is in the 2100-2200-foot zone.

Another test in the Mount Holly district of Ouachita County, Arkansas, ended in failure during the week when McDonald Brothers abandoned Wilson 2, Section 25-15-18, as a dry hole at 2908 feet.

Only two new locations were announced for Arkansas during the week, both being in the northwestern part of the state. Red Bank Oil Company is rigging up Edtin 1, SW NE Section 33-10-26, Franklin County, and Lavaca Oil and Gas Company is building derrick for Southland 1, SE NW Section 28-8-30.

R. O. Roy's Farmer E-1, Section 5-13-13, DeSoto Parish, Louisiana, a wildcat recently completed 10 miles from nearest production, gauged 2102 barrels for the first 24 hours through three-quarter-inch choke, on April 4 was maintaining a daily yield of 1308 barrels still flowing through the choke. The first offset to the well was spudded in during the week, this being Arkansas Fuel Oil Company's Scott 1, Section 32-14-13, which is now down to 450 feet. Roy has derricks up for two other tests in the area and is rigging up on a third.

Arkansas Fuel Oil Company's Urania F-5, Section 24-10-1e, LaSalle Parish, Louisiana, in the Urania field, which is being drilled as a deep test is now making hole at total depth of 5467 feet.

In Caddo Parish, Louisiana, C. W. Robinson is reaming at 2300 feet after testing dry in a drill stem test from 2149 feet to 2161 feet in Wilson 1, Section 2-15-16, a wildcat. Another wildcat that tested dry in Caddo Parish was Triangle Drilling Company's Hardy 1, Section 19-18-16, which set eight-inch casing at 1726 feet with one foot of sand, total depth being 1727 feet. It was dry at that level but showed a little gas and is now drilling at 1825 feet.

California Gas Law Enforcement Revives Interest in Repressuring

(Continued from page 62)

different theories as to the wisdom of such a program have arisen. A few engineers do not believe it profitable to inject gas into depleted sands under ordinary circumstances. The huge surplus of gas in the Los Angeles basin, however, has made it necessary to blow the commodity to the air or save a part of it through injection. Where the gas was available and no particular energy or expense was incurred in producing it, major companies have found it possible to force it into partially depleted sands with a degree of success.

Circulation Does Not Dry Out Oil

Does circulation and recirculation of dry gas tend to "dry out" the oil left in the sand by bringing back the lighter elements each time?

Most engineers claim this theory to be nothing more than a myth, although gas recovered is not as rich as the original gas produced before repressuring is started. It does come back with almost as much gasoline, however, and the gradual drop in the gravity of oil as repressuring is continued is negligible. Since there is no way to determine what the ultimate natural recovery would have been, an exact check cannot be made.

Granting that the oil may become slightly heavier over a period of years, engineers generally believe that the injection of gas enlivens the remaining oil enough to offset a natural sluggish tendency. There is no proof that oil in all fields will become heavier as the result of repressuring.

Channelling presents a problem which eliminates repressuring in townlot areas unless cooperative agreements are reached. An extensive cooperative plan was formulated last year but opposition to the program eliminated it.

Repressuring and storage of gas is now one of the most timely topics in California. The effect of gas injection upon future production of oil is not as important as its effect upon the immediate output. Several companies are now equipped to produce more gas, and consequently more oil, and stay within the law than what would ordinarily be their proportion, simply because they have facilities for forcing the gas back into older zones. Whether or not gas may be economically stored is not so much the question as the disposition of the gas.

If the surplus gas in a field like Long Beach could be pooled and sent to the older fields for storage, it is estimated that production of oil could be increased by almost the full difference between the present output and the potential. In such a case, curtailment would be seriously affected; for the gas conservation law would not apply to the field. Smaller operators have not been able to see the wisdom of cooperative gas pooling, however, and as the result will be forced to reduce oil production to comply with the gas saving statute.

Louisiana Drilling Ahead of This Time in 1929

Shreveport.—Drilling permits in Louisiana for the first quarter of 1930 totaled 256, as compared to 193 issued for the first quarter of 1929, according to figures of the minerals division of the Louisiana Conservation Commission.

A total of 392 permits for all purposes were issued for the first quarter of this year, comprising, besides the drilling permits, 17 to deepen, 106 to abandon, two to plug back, two to sidetrack, three to abandon temporarily, three to shoot formation, one to perforate and two to work over. Permits for all purposes for the corresponding quarter in 1929 totaled 379.

Bossier Parish, in which is located Cartersville, and Sabine Parish, in which is located Zwolle, led for the quarter over other parishes of the state. Twenty-seven drilling permits were issued for Bossier Parish in March of this year, and 24 were issued for Sabine Parish for that month. Total drilling permits for the month for all parishes were 102 with 154 permits being issued for all purposes during the month, including 45 abandonments.

Mississippi Wildcat Well Flows Salt Water

Jackson, Miss.—Gulf Refining Company's Rainey 1, Section 13-5n-1e, Rankin County, Mississippi, east of Pearl River from Jackson, which showed 5,000,000 to 7,000,000 feet of gas and 1000 to 1200 barrels of salt water with a trace of heavy oil when drilled in in the Selma chalk at 2520 feet recently, and was then closed in, flowed at the rate of 10,000 barrels of salt water daily with a show of oil when opened again April 3. Just what disposition of the well will be made has not been announced.

While there have been a number of "map" locations made in Hinds and Rankin Counties in and around Jackson during the week, only three official locations have been staked, bringing the total of operations here to 12. Dome Oil & Gas Company has derrick up for Elton 1, NE SW Section 5-4-1e, Jackson Oil & Gas Company has derrick up for Central Cotton Oil Company 1, SW NW Section 3-5-1e; and F. X. Gowans made location for Fee 1 in SE NE Section 19-6-1e, on a 19-acre tract he has leased in the town limits of Jackson.

Mrs. Ella Rawles Reeder is still fishing for parted drill stem in State Land 1, Section 25-6-1e, which has a depth of 2905 feet.

Jackson Oil & Gas Company's Mayes 1, Section 2-5-1e, is supplying gas to the boiler for the same company's Taylor 1, Section 35-6-1e. The gas is being run through separator. Taylor 1 is drilling in the Wilcox series at 2100 feet.

Louisiana Gas & Fuel Company is waiting on rock bit cones at 1600 feet in the Wilcox in Harris 1, Section 35-6-1e. Love Oil & Gas Company is moving rig in from

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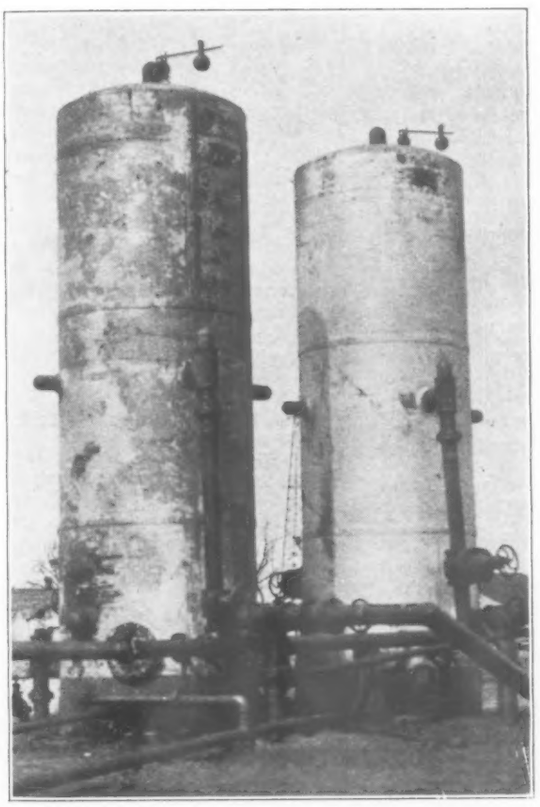

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News From Rocky Mountain Fields

Monroe, Louisiana, for Bridges-Hilzim 1, Section 35-6-1e. The well is expected to be spudded in by the middle of April.

Love Petroleum Company has set 10-inch casing at 804 feet in Mendoza 1, Section 11-5-1e. Progressive Oil & Gas Company has derrick up for Mayes 1, Section 2-5-1e. Derrick is also up for Tri-State Oil & Gas Company's Wilson 1, Section 23-6-1e.

R. A. Moore and associates, who have derrick up for Interior Lumber Company 1, Section 28-6-2e, Rankin County, are now organizing Interior Oil Company to handle the operation. Love Brothers have the drilling contract.

Amory Petroleum Company's Hall 1, Section 8-13-17, Monroe County, Mississippi, Amory district, was shot with 40 quarts of nitro-glycerine in a sandy shale formation from 2408 to 2412 feet, and the well is reported to have shown 200,000 cubic feet of gas daily. This is the level from which the other two gassers in the Amory area are producing gas. Total depth of the old hole in Hall 1 is 3045 feet.

Amerada Petroleum Corporation is Abandoning Campbell 1, Section 24-12-2w, Yazoo County, Mississippi, at 5200 feet, bottom of the hole being sandy lime in the Cretaceous. This is the deepest test ever drilled in Mississippi.

J. D. Collette and Carter Oil Company are arranging to resume drilling in Blackmer 1, Section 14-11-4w, Yalabousha County, after completing a fishing job. Total depth is 2433 feet.

A. D. Morton and associates have completed a fishing job at 300 feet in O'Neal Heirs 1, Section 8-2s-13w, Lauderdale County, Alabama, where a gas show was encountered and are drilling black limestone around 400 feet. The gas is diminishing.

South Baxter Basin

Rock Springs, Wyoming.—Mountain Fuel Supply Company's No. 1 Union Pacific, in South Baxter Basin, which last week looked good for an initial 8,000,000 feet of gas, is now producing 23,000,000 cubic feet from the Dakota series at 2454 feet. The original plan of this company, which is a subsidiary of the Ohio Oil Company, was to drill this well to the Sundance, but the production in the Dakota has been too good to pass up. The gas will be a part of the supply which feeds the pipe line to Salt Lake City and Ogden.

Rawlings, Wyoming. — Producers & Refiners Corporation and Midwest Refining Company's joint test on Mahoney Dome has 3000 feet of oil standing in the 4700-foot hole; production is coming from the Tensleep sand and at present bit is believed to be about the middle of this horizon. It is supposed that this test will be carried to the Madison line, usually found 600 or 700 feet deeper.

New Canadian Border Field Extended Mile

Great Falls, Montana. — A southeast extension of about a mile has been proved in the new border field, which lies partly in Montana and partly in Alberta, by the Monalta Oil Company's No. 1 Buckley. The well has 1500 feet of oil standing in the hole bottomed in the Vanalta sand which was drilled into at 2480 feet. All available tankage was exhausted when the well was swabbed, and test is now standing shut in while more storage is built.

Some question is said to exist in the minds of some operators as to just what sand the Buckley well is standing in. The company believes it is in the Sunburst, but scouts state that the Sunburst was drilled into at 2390 feet and that the well is now certainly in the Vanalta, the true producing horizon in the new field.

Cosmos Petroleum Company's well which last week was believed to be good for as much as 2000 barrels, is lately reported to be showing for a much smaller well. It is being ruined by water which seems impossible to shut off.

There are four new wells under way on the Canadian side of the line, and one active operation in Montana with several more planned for immediate starting.

Idaho Blowout

Payette, Idaho.—The discovery gas well on a structure near here blew out for the third time last week, forcing gas, sand, and debris high over the top of the 140-foot derrick for about three hours. Hole is bottomed at 1270 feet. There has been no gauge made of the well's production, although it is estimated good for several million cubic feet. This gasser belongs to Idaho-Oregon Petroleum Association, organized by Col. L. V. Patch and then taken over by Wenatchee Finance Corporation of Wenatchee, Washington. Well has not been completely cleaned out due to the fact that on each occasion an attempt was made, the well blew out.

Moffat County

Denver.—Interesting tests to the Pennsylvania sands on Colorado structures are promised by various companies this year. One is to be on a Moffat County structure where those formations which produce at Iles Dome and Moffat have been eroded away, leaving the Pennsylvanian within reach of comparatively shallow drilling. Another test is planned east of the mountain range lying north of the old Boulder field where the Pennsylvanian is again close to the surface. A third is projected for Meeker dome in Rio Blanco County, where a test was drilled by the Marland Oil Company in 1924 and abandoned at 1990 feet when an attempt to effect a water shut-off was ineffectual. The fourth test is reported, but due to operators not having reached definite agreements, no announcements are made.

Promising Wildcat

Denver.—Perhaps the most promising wildcat well being drilled in Colorado this season is that of the White Eagle Oil Corporation on the Piceance Creek structure in Rio Blanco County which at 3300 feet has increased showings of gas which is reported increasingly wet. A large flow of new gas from sandy shale recently developed and the heavy pressure has made it almost impossible to progress further in the 8¼-inch hole, and it has been decided to run a string of 6¼-inch casing to reduce the pressure and shut off the cavy formation. Gas production is considered commercial, and for gas the structure is believed proved. Argo Oil Company is interested with the White Eagle Oil Corporation in leases on the structure.

North Casper Creek

Casper.—All States Oil & Gas Company, operating in the North Casper Creek field where it has recently completed two commercial producers, announced last week that it would drill a deep test to the Madison line, and deeper if necessary, in an exploration of lower horizons in this district.

North & South Railroad Company is to complete a spur track to the field, and the shipment of oil is to be started within a short time. It is said that the company has recently contracted to furnish 60,000 barrels of crude to a Casper refinery.

Start Line

Glendive, Montana.—The Hope Engineering Company has started its crews composed of 400 pipe line men on the work of laying the new gas line from Glendive to Williston, South Dakota. Noel Carrico, manager at Sidney for the company, says that Savage, Fairview, and Williston are to be supplied with gas by July.

Casper.—Mineral Leasing Division, U.S.G.S., announced here recently that the secretary of the Department of the Interior had ruled that an operator holding a prospector's permit to explore for oil and gas on the public domain, after securing an "A" lease, would also be entitled to receive a "B" lease. This is a material lessening of the restrictions of a previous order by the department.

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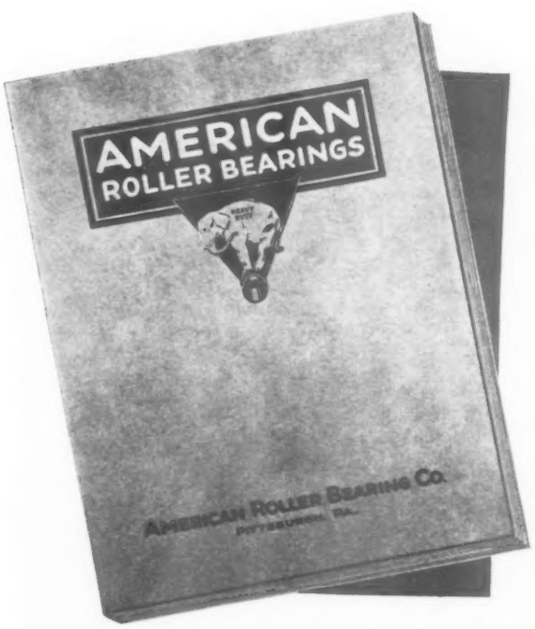

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Latin America's Oil Resources Total 13,805,000,000 Barrels

WASHINGTON, D. C.—Petroleum resources of Latin America, particularly in Venezuela, Mexico, Colombia, Peru and Argentina, are an outstanding factor in attracting American capital to those countries, according to a survey just completed by Dr. Max Winkler, for the World Peace Foundation. The results of Dr. Winkler's investigations are carried in a bulletin just issued by the foundation, which is one of a series of reports to furnish facts to the public regarding international relations.

"Before the World War," writes Dr. Winkler, "oil was found in only one country, Mexico, but at the present time, oil has been discovered in almost all Latin American countries. The discovery of tremendous oil resources has been, and to a much greater extent will be the most important factor in the economic development of our neighbors to the south."

Dr. Winkler cites statistics of the United States Geological Survey to show that the oil resources of Latin America amount to approximately 13,805,000,000 barrels, or over 42 per cent of the total potential supply of petroleum throughout the world. Latin America's future oil supply is twice as great as that of the United States and more than twice that of Southeastern Russia, Southeastern Siberia, the Caucasus, Persia and Mesopotamia combined.

Present oil production in Latin America, Dr. Winkler notes, is about one-sixth of the annual world production and one-fourth of the production in the United States.

Venezuela is now way in the lead over all other Latin American countries in the production of petroleum, having produced two-thirds of the entire world output in 1928, which was more than one-eighth as much oil as that produced in the United States and more than twice that of Mexico's production. Dr. Winkler produces figures to show that Venezuela's oil production jumped from 9,147,700 metric tons in 1927, to 15,590,000 metric tons in 1928, a metric ton being equivalent to 284 gallons. Mexico's production fell from 9,119,300 metric tons in 1927, to 7,654,852 tons in 1928.

Venezuela's export of oil now equals in value that of her coffee exports, each representing about 40 per cent of the total exports, according to Dr. Winkler.

U. S. Investments Grow

United States investments in Venezuela, Dr. Winkler estimates, were valued at $75,000,000 in 1924, of which one-half was in oil, the remainder representing sugar plantations, mines, banks, and public utilities. Since 1924 there has been an enormous rise in the flow of American capital to Venezuela, the amount last year being $161,565,000, almost all of which is invested in oil. American investments in Venezuela have risen over 5000 per cent since 1913, when they were $3,000,000.

"At the present time," writes Dr. Winkler, "there are three large operating oil companies in the Maracaibo Basin controlled by American capital, and two companies controlled by British and Dutch capital. In addition there are innumerable smaller companies. Whereas in 1927 the European companies led in production, American companies at the present time are producing more oil than the others. The output of American controlled companies during the first three months of 1929 was 19,000,000 barrels, compared with 13,600,000 barrels produced by British-Dutch controlled companies."

Oil production in Mexico has been steadily declining since 1921, according to Dr. Winkler, who names over 100 American owned or controlled petroleum companies operating in the republic.

Of the $1,500,000,000 or more of American money invested in Mexico, the largest single item, $408,000,000, represents oil. Other items are government bonds, $155,800,000; state and municipal bonds, $6,000,000; railroads, $300,000,000; mining and smelting, $391,000,000; manufacturing, $60,000,000; wholesale and retail enterprises, $50,000,000; public utilities, $37,500,000; banks, $3,500,000, and plantation and timber investments amounting to $138,296,000.

Of the total amount of foreign money invested in Mexico's oil development, Dr. Winkler estimates that nearly 60 per cent is American, the British and Dutch being next in order. British total investments in Mexico are put at over $1,000,000,000.

"Of particular importance is the amount of American capital invested in Colombian oil," Dr. Winkler observes, in describing the activities of 28 American oil companies in Colombia. Petroleum exports from Colombia were valued at $9,000,000 in 1926; $22,400,000 in 1927, and $21,465,000 for the first 10 months of 1928.

Dr. Winkler points to the heavy expenditures for machinery and equipment by the oil companies as a dominant cause of the high exports from the United States to Colombia in 1926, 1927 and 1928. American investments in Colombian oil development enterprises during those years totaled $20,846,000. Oil production in Colombia jumped from 2,073,800 metric tons in 1927, to 2,768,581 tons in 1928.

"Peru," he writes, "ranks high among the oil producing countries of Latin America, with a yield of about 7,000,000 barrels a year." Two-thirds of Peru's petroleum output is controlled by American interests, mainly the International Petroleum Company, a subsidiary of the Standard Oil Company of New Jersey. Oil now constitutes about one-third of Peru's exports.

Argentina, according to Dr. Winkler, produced 8,356,294 barrels of oil in 1927 and 8,805,437 in 1928.

Shippers Loading Allowance At Tulsa Rejected by Commission

THE Midland Valley Railroad Company has been notified and required by the Interstate Commerce Commission to cancel, effective not later than April 17, 1930, certain schedules filed by that road, by which it was sought to make an allowance of $1.00 per car to oil shippers located at Tulsa.

The schedules were filed to become effective September 18, 1929, in Supplement No. 1—to Midland Valley I. C. C. No. 497, under which the Midland Valley Railroad Company held out an allowance of $1.00 per car to certain shippers of petroleum and its products, towards the expense of maintaining loading crews, pipe line carrying charges and other costs incident to the maintenance of loading racks on that line at Tulsa. The proposal to make this allowance was protested to the Interstate Commerce Commission by the St. Louis-San Francisco Railroad Company and the operation of the schedules was suspended until April 18, 1930. The case was assigned for hearing under investigation and suspension Docket No. 3350. In support of the St. Louis-San Francisco Railroad Company, the Mid-Continent Petroleum Corporation intervened. The Texas Company and the Transcontinental Oil Company also appeared at the hearing to protect their interests, respectively, that of the refineries at Tulsa. Subsequent to the hearing, the case was orally argued before the commission at Washington.

The suspended schedules by which the Midland Valley Railroad Company expected to make the allowance, contained the following provision: "At Tulsa, when any shipper of petroleum and its products whose refinery is located on the tracks of the St. Louis-San Francisco Railway, has oil loading racks on the tracks of the Midland Valley Railroad served by shippers pipe lines from its refinery, and also has loading racks on the tracks of the St. Louis-San Francisco Railway, the Midland Valley Railroad will, in instances where it receives a road haul on such shipments, in lieu of the absorption of the St. Louis-San Francisco Railway switching charges, absorb $1.00 per car toward

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the expense of maintaining loading crews, pipe, line carrying charges and other costs incident to maintaining loading racks on the tracks of the Midland Valley Railroad." * * * Under existing schedules, the duty and expense of loading and unloading carload shipments of petroleum and its products, rests upon the shippers and it is generally understood that the rate for transportation is made with due regard for this expense. In this rase, however, it seems that a somewhat different physical loading operation exists at Tulsa, which the Midland Valley Railroad considered sufficient justification for a departure from the existing tariff regulations. The Mid-Continent Oil Company maintains loading racks at Tulsa on both the St. Louis-San Francisco Railway and the Midland Valley, but the latter is not within the plant proper, being located on the other side of the main tracks of the St. Louis-San Francisco Railway, whose loading rack is within the plant proper and all shipments may be loaded on it. During 1928, 8833 cars were loaded on the Midland Valley rack, of which 1114 were switched and forwarded from Tulsa by other lines than the Midland Valley. The estimated additional cost of maintaining the Midland Valley loading rack during 1928 is as follows:

One tank cleaner	$1,392.00
One assistant foreman	1,920.00
One ground man	1,260.00
Five-eighths of time of one car inspector	1,248.10
One guard	1,800.00
Repairs to rack	883.00
Sample boy (estimated)	195.12
Additional cost of pumping (estimated)	243.00
Water	30.00
Lights	679.64
Power at rack	45.00
Coal	66.00
Total	$9,761.86
Average per car	$1.098

On shipments loaded on the St.L.-S.F. and switched to the Midland for transportation on that line, a switching cost of $6.30 per car was paid to the St. Louis-San Francisco Railway, which was absorbed by the Midland Valley Railroad out of the freight rate and it was this absorption that the Midland Valley Railroad sought to dispense with, which if the proposed schedules had been approved by the commission, would have resulted in substantial savings for the future for the Midland Valley Railroad, as it will be noted from the 1928 figures, that only 1114 cars out of a total of 8883 loaded were switched to other lines.

The Midland Valley Railroad contended that it should be permitted to obtain some road haul traffic without the payment of a switching charge to the St. Louis-San Francisco Railway; that the Mid-Continent Oil Company would pay the same net charge as other shippers similarly situated, because the expense of its rack would be greater than the amount allowed; that no damage would accrue to either shipper or carrier; and that the saving would be material. It also relied upon Section 15, paragraph 13, of the Interstate Commerce Act, which recognizes the right of a carrier to make an allowance to a shipper who performs some transportation service connected with the shipment of his property. The St. Louis-San Francisco Railway contended that irrespective of the purpose of the schedule and the ends it sought to attain, that the operation of the schedules was of an illegal nature and would result in violations of Sections 2, 3 and 4 of the act. The contention as to Section 4 was based upon the fact that the rate from the loading rack of the Mid-Continent Company to St. Louis is the same as from the rack of The Texas Company and another at Barnsdall, Oklahoma, which would not receive the benefit of the allowance and both are intermediate with respect to shipments from the Mid-Continent Company. In determining the issues, the commission said it was the duty of shippers to load and unload shipments; that the assumption of this duty proposed by the Midland Valley Railroad would be in a single instance and only at a competitive point; that if the allowance were approved, every shipper in the country situated similarly would be entitled to an allowance and that the carrier cannot pay one shipper for a transportation service and at the same deprive another of compensation for the same or like service.

Exhaustion of World's Oil Supply Discounted

Prediction that exhaustion of the world's petroleum supply is imminent, is discounted by "Fortune," published by "Time," in a survey of the oil industry appearing in the April issue of that new business monthly.

The article admits that the petroleum industry is "unquestionably" producing too much oil, but it takes the view that such production endangers the present prosperity of the industry far more than the supply of petroleum.

Discussing the possibility of the discovery of immense flush production such as Seminole or Oklahoma City, this article confirms that possibility and points out "It takes only a few hundred acres to make an oil field ... and one rich field will add another 100,000,000 barrels or more to the annual production of oil."

Concerning potential future development of both old and new fields, the article says, "In the first place, it is not possible to say how much more petroleum may come out of deeper sands in such fields as are already in production. In the second place, it is even less possible to predict when and where and how many new fields may be discovered. In the third place, the manufacture of synthetic petroleum has reached a point at which it must be respectfully considered as a commercial possibility. All of which is not to say that the supply of liquid petroleum will last unrestricted production. It does mean, however, that to set any date, whether it be 1980, 2000 or 3000, for the disappearance of petroleum is to reach an unsound conclusion based upon nonexistent grounds."

ANSWERS

to questions found on page 36

1. The Midland, Michigan, or Mt. Pleasant field as it is sometimes known, and the Van field, Van Zandt County, Texas, are two good examples of oil fields being developed according to the unit plan of development. Both fields are controlled, for the most part, by Pure Oil Company.

2. Petroleum and refined petroleum products rank first among rail shipments in the United States. Total crude shipments in tons for 1928 (the latest year for which accurate figures are obtainable) amounted to 7,632,000; and refined petroleum products for the same year totaled 56,777,000 tons.

3. Hydrogen and carbon are the two constituent elements of petroleum.

4. According to the preliminary report of the Bureau of Mines, the world crude oil production in 1929 totaled 1,488,604,000 barrels of which total the United States produced 1,006,000,000 barrels.

5. Cost of drilling oil and gas wells in 1928 was estimated at $503,332,000 for 22,331 completed wells, or an average cost per well of $22,540.

6. The gas-oil ratio of production is the measuring stick of production efficiency which involves a consideration of both pressure and volume. For example a force exerted by 1000 cubic feet of gas under 100 pounds pressure is far less than the force exerted by the same quantity of gas under a pressure of 1000 pounds per square inch. Thus the fundamental factor is the combination of pressure and volume, which together make the force exerted by gas. Any comparison of production methods in two or more wells, or in wells at different fields where conditions cannot be exactly alike in all details, involves the matter of gas-oil ratio which has as an index both pressure and volume.

7. Production of gas in 1928 totaled 1,568,139,000 cubic feet.

8. The commercial development and recognition of the seismograph came about through recognition given scientists employed by the National Research Council, formed during the World War to solve important problems arising from that struggle, who adapted the seismograph to the purpose of recording the intensity of sound waves set up by big guns on the Western Front. The registration of these waves on the seismograph became the basis for scientific calculations as to the distance of the guns. In geological exploration for potential oil producing areas, the seismograph now performs a similar function for the oil industry.

9. It is estimated that more than 800,000 oil wells have been drilled since the original discovery well was drilled by Colonel Drake in 1859.

10. Accurate statistics show 76,070 miles of pipe lines had been built by the end of 1927. Estimates as of January 1, 1930, place the total in excess of 100,000 miles.

Daily Production Down 100,000 Barrels In March

Preliminary figures show material improvement in practically all major areas

By H. J. STRUTH
Staff Economist

A PRELIMINARY check of crude production during the month of March reveals that the daily average for the United States had declined 109,200 barrels below the rate attained during February, bringing the total production for March down to 78,792,800 barrels. This is further evidence of the effectiveness of proration and furnishes a decidedly encouraging outlook for the immediate future.

Analysis of daily averages recorded by the major producing states shows that the trend toward lower production was general in March, with California establishing another new record which resulted in lowering the daily average of that state by about 97,000 barrels. Oklahoma showed a net reduction of about 10,000 barrels daily and Texas, outside of the Gulf Coast, succeeded in reducing output by approximately the same amount. Aside from slight increases in Kansas, Gulf Coast, North Louisiana and Arkansas, the general trend of production prescribed a course that indicated early converging of current supply with current demand. With the exception of Texas, the production situation during March appeared to have reached a stage of practical equilibrium for the first time since curtailment of over-production was generally put in force.

California production during March was lowered further by a combination of proration restrictions and the operation of the new gas saving law. Actually, California's daily crude production was lowered to a point well below the average indicated for the month of March, indicating that the current supply there had reached a state of absolute equilibrium with demand.

Already, many operators in California are beginning to believe that present production schedules will be inadequate to meet the indicated larger requirements of the immediate future. This has given rise to the belief that prices will be further advanced there before long. However, the fact that stocks of California crude are excessive and production during the first two months of the year continued at an excessive level indicates that present production rates must be continued for some time before higher crude prices will be justified there.

In Oklahoma, the situation has reached the stage where an advance in crude prices can be expected momentarily. Oklahoma's output has been maintained at a level where stocks have had to be drawn upon to some extent and the increasing rate of demand will readily absorb occasional spurts in daily output. The situation in Oklahoma appears unusually bright at this time and points to a higher crude market.

Further Curtailment Needed in Texas

While Texas operators have succeeded in reducing production to some extent, it is apparent that there is immediate need for further curtailment there before conditions will assume a state of real equilibrium. Practically little has been done in this state to lower production to a normal level, with the result that the approaching season of greater demand cannot be expected to offset the excess supply accumulated since the first of this year. This situation somewhat overshadows the prospect of immediate higher crude prices in Texas. However, if further curtailment is placed into effect there immediately, there is every reason to believe that the prospective demand ahead will quickly absorb the excess of the past and place the industry in a position favorable to a boost in crude prices during the early summer. A special article appearing elsewhere in this issue, calls attention to the necessity for curtailing production in Texas to the extent of at least 100,000 barrels a day in order to balance current supply with indicated normal requirements.

Well completions during March were greater in number than during February but the quantity of new production obtained was materially less. Completions outside of the Rocky Mountain area aggregated 1544, as compared with 1463 in February, while new production aggregated 665,535 barrels, as compared with 990,896 barrels in February. Oklahoma was responsible for the sharp decline in new oil production. Although the number of well completions there registered an increase of 78 wells, initial production dropped from 712,563 barrels in February to 354,533 barrels in March. Details of field operations for Oklahoma show that wells completed in the Oklahoma City pool were not as large as those completed in the preceding month, which proved to be a period of record-breaking performances. The bulk of the new production obtained, however, was contributed by the Oklahoma City pool, where 292,519 barrels constituted the yield for the month. The Seminole area contributed 39 new producing wells with an aggregate initial output of 42,972 barrels.

Texas Completions Down

Texas well completions during March aggregated 551 against 492 in February, while the quantity of new production declined from 176,035 in February to 117,292

UNITED STATES PRODUCTION

Following is the gross crude oil production in the United States (in barrels of 42 gallons) during the month of March, as compiled from daily averages reported by the American Petroleum Institute. There are some differences between the figures shown below and those contained in detailed tables appearing elsewhere in this issue. The figures below are the result of calculating A.P.I. estimates for the representative fields.

	Daily Average Production		Total Production
	March*	February	March*
Oklahoma	621,300	631,900	19,260,400
Kansas	115,300	111,400	3,574,200
Texas (outside of Gulf Coast)	644,350	654,600	19,975,100
Gulf Coast	206,100	199,950	6,388,550
North Louisiana	41,550	39,450	1,288,300
Arkansas	58,650	58,400	1,818,250
Eastern States	132,550	135,050	4,108,650
Rocky Mountain	73,550	74,850	2,279,650
California	649,650	746,550	20,139,700
Total	2,542,950	2,652,150	78,792,800

*Preliminary--Subject to revision.

PAST TWELVE MONTHS

The record for the past twelve months is an interesting study for comparative purposes, the following table giving the field statistics for all states:

Month—	Completions	Producers	Gas Wells	Failures	Initial Production
January, 1929	2,068	1,221	262	582	746,564
February	1,434	830	150	442	236,071
March	1,677	911	207	549	468,424
April	1,556	843	206	507	399,646
May	2,084	1,119	295	670	437,731
June	1,598	913	200	485	407,782
July	1,725	986	226	513	420,033
August	2,552	1,507	337	708	541,720
September	2,169	1,310	234	624	448,283
October	2,447	1,414	301	732	433,990
November	1,965	1,139	283	543	442,170
December	1,791	978	275	538	433,264
January, 1930	1,918	1,142	296	480	685,325
February	1,463	881	201	381	990,896
March	1,544	794	220	530	665,535

Note—Rocky Mountain data Omitted.

UNITED STATES FIELD STATISTICS

Following are the completions, showing oil wells, gas wells, failures and initial production of crude oil and gas by states for the month of March, as compiled by The Oil Weekly.

State—	Completions	Producers	Gas Wells	Failures	Initial Production Oil	Initial Production Gas*
Arkansas	29	18	2	9	416	62
California	96	89	..	7	42,348	..
Illinois	13	8	..	5	395	..
Indiana	10	5	3	2	347	2¼
Kansas	89	39	7	43	14,916	24¼
Kentucky	73	28	4	41	1,438	5
Louisiana	60	25	10	25	8,564	211
Michigan	21	16	1	4	2,268	1
New York	18	15	1	2	96	½
Ohio	131	49	43	39	2,074	33¼
Oklahoma	279	160	29	90	354,533	721¼
Pennsylvania	62	47	12	3	315	7
Tennessee	1	..	..	1	...	..
Texas	551	275	38	238	117,292	605
West Virginia	111	20	70	21	533	68¼
Total	1544	794	220	530	665,535	1740¾

*Millions of cubic feet.

in March. The West Central Texas area was the scene of greatest activity during March, contributing 184 new wells, of which 60 were producers. The quantity of new production obtained, however, proved small, aggregating only 4780 barrels. Southwest Texas furnished the largest quantity of new production with a total for the month of 44,565 barrels of 24-hour production. Completions in West Texas aggregated 61 wells, of which 38 were producers, although the aggregate initial output proved to be only 14,485 barrels. This is a favorable sign at this time, since the quantity of new oil production in West Texas during the month of January amounted to 57,055 barrels.

Wildcatting in West Texas during March resulted in the completion of 15 wells, all of which proved to be dry holes. Completions in Pecos County proved a majority of the wells to be small producers. This area contributed only 6740 barrels of new production during March.

Operations in the Gulf Coast area of Texas continued to prove productive and extended the limits of proven areas. During March 59 producing wells were completed in the Gulf Coast, contributing 41,211 barrels of new oil production.

Wildcatting continues to occupy the attention of operators in the North Louisiana fields, where 27 out of a total of 41 wells completed in March proved to be pure wildcat operations. Of this number, 15 wildcat wells proved to be producing oil wells, with a total initial output of 2105 barrels. Thus, practically all of the new production obtained in this area originated in wildcat territory. Well completions in the proven areas of North Louisiana seem to be more productive of natural gas than of oil.

Operations in the Eastern States showed a decline in comparison with February, although the quantity of new production obtained was practically the same as in the preceding month. Ohio and west Virginia contributed the bulk of new work during the month, although, from the standpoint of productivity, Michigan and Ohio held the lead. There has been a noticeable slump in new work in the Muskegon, Michigan, area, undoubtedly accounted for by the fact that the productivity of wells completed in this area has shown a marked decline in recent months. The Pennsylvania fields have also exhibited a declining tendency in both the number of well completions as well as in quantity of new oil production obtained. Severe weather conditions in the Eastern area have undoubtedly been responsible for this situation. Another factor has been the declining market value of Eastern crudes.

Detailed Field Statistics for March start on page 124

California New Production Off

Although more wells were completed in California during March than in February, the quantity of new production showed a marked decline during the month of March. Of 96 completions in March, 89 were producers, with an aggregate initial production of 42,328 barrels. During February, 79 wells were completed, of which 69 were producers, while the quantity of new oil production aggregated 71,226 barrels. Santa Fe Springs operations showed a marked increase over February with the completion of 55 wells, as compared with only 29 in February. The quantity of new oil production obtained, however, declined from 39,575 barrels in February to 24,665 barrels in March. In comparing the results since January, it is noted that the productivity of new operations in this field has slumped considerably. In January, 46 wells produced a total initial production of 117,382, indicating that the average production per well in this field has declined from 2552 barrels to only 450 barrels within the short period of three months.

On the whole, the oil situation has assumed a far more cheerful aspect than has been apparent for a long period of time. The fact that the potential crude supply of the United States continues to grow larger, coupled with the proven ability of operators to maintain production schedules within reasonable bounds prescribed by normal requirements, indicates that the immediate future of the industry is conducive to a more prosperous era for all concerned. It is hoped that operators in Texas will more fully appreciate the necessity for further curtailment there, in order that a check of the situation in the near future will reveal full realization of economic stability throughout the United States.

Hanlon Heads Louisiana-Arkansas Safety Unit

Shreveport.—H. J. Hanlon of the Standard Pipe Line Company of Louisiana, was elected chairman of the newly formed Louisiana-Arkansas Petroleum Safety Council at its first regular meeting held in the offices of the Louisiana-Arkansas division of the Mid-Continent Oil & Gas Association here April 2.

Other officers elected are: G. R. Hurdle, Ohio Oil Company, vice-chairman; T. J. O'Sullivan, assistant secretary of the Louisiana-Arkansas division of the Mid-Continent Oil & Gas Association, secretary, and Louis Lyons, Louisiana Oil Refining Corporation, treasurer.

Several days after the meeting F. E. Cash of the United States Bureau of Mines, of Birmingham, Alabama, came here and pledged the aid of the bureau in carrying out a program of first aid training for the oil industry in this territory. He said he will send a representative here for the month of June and also for the month of August to aid in the program. This course of instruction will start with employes of the Louisiana Oil Refining Corporation, with Ohio Oil Company, Crystal Oil & Refining Company, Magnolia Petroleum Company, and Arkansas Natural Gas Corporation and its subsidiaries next in the order named.

COMPLETIONS FOR PAST WEEK IN U.S. FIELDS

CALIFORNIA

Company, Well and Location	Initial Production Bbls.	Depth
ELWOOD—		
Barnsdall Oil Co., Bell 12	2000	3433
Bell 17	4000	3400
FRUITVALE—		
Shell Oil Co., Brackenbury 1, 27-29-27	150	4040
LONG BEACH—		
Bartholomae Oil Syn., No. 6	100	7510
E. B. Campbell, No. 4	1000	6800
Congress Pet. Corp., Butler 1	50	7205
Dabney-Johnston Oil Corp., No. 45	600	6512
Richfield Oil Co., Booth 14	180	5430
Roggie Simmel, No. 3	100	7340
Two-in-One Oil Co., Hughes 1	575	7040
Western Oil and Refining Co., Dutcher 2	125	7345
MARICOPA FLATS—		
Doyle Pet. Corp., Son-Crail 7	1600	3490
Weir 4	1700	3485
Standard Oil Co., No. 9-9K	160	3700
ORELLA-CAPITAN—		
General Pet. Corp., Erburu 2	250	1385
SANTA FE SPRINGS—		
Bandini Pet. Corp., Off 13	675	7960
Elmer Oil Co., Santa Fe 3	150	7930
Santa Fe 4	160	8000
General Pet. Corp., No. 160-A	700	5970
Standard Oil Co., Hepler 7	...	8050
Jordan 3	...	4700
S. W. C. 29	260	7950
Union Oil Co., Bell 54	1000	7960
WEST COYOTE—		
Standard Oil Co., Emery 43-A	1500	5735

KANSAS

Company, Well and Location	Initial Production Bbls.	Depth
BUTLER COUNTY—		
Empire Oil & Refg., Koogler 94., sw c ne, 20-26-5e	60	2590
Ramsey et al, Wilkinson 1, se c nw, 25-24-3e	*	2768
Lario Oil & Gas, Nixon 1, nw c sw, 23-27-5e	*	2830
COFFEY COUNTY—		
Ritchey and Moore, Tibbens 2, ne nw nw, 18-23-15e	*	1672
Selby Oil & Gas, Scott 1, "B," cel ne ne, 13-23-14e	*	1692
GREENWOOD COUNTY—		
Simmons and Amerada Pet. Corp., Winiger 1, ne c se, 27-23-11e	*	2060
HARVEY COUNTY—		
Liggett et al, Regier 1, se nw se, 2-23-3w	*	3855
McPHERSON COUNTY—		
Shell Pet. Corp., Koehn 1, ne nw ne 16-21-3w	710	3395
Sinclair Oil & Gas, Voshell 3, nw sw nw, 10-21-3w	490	3366
Shell Pet .Corp., Stucky 4, ne sw se, 9-21-3w	1380	3371
Barnsdall Oil Co., Krehbeil 2, sw c se, 4-21-3w	1270	3370
Slick, Pryor and Lockhart, Stucky 1, se sw sw, 27-20-3w	¶5	3045
Gypsy Oil Co., Stucky 1, sw se nw, 10-21-3w	*	3534
Dixie and Amerada, Voshell 1, ne se nw, 9-21-3w	*	3571
McPherson Oil & Gas Devel. Co., Rudiger 1, c ne, 26-20-2w	*	3001
Dixie, Johnson 1, sw c, 20-17-3w	*	3604
RICE COUNTY—		
Derby Oil Co., Johnson 1a, nw ne se, 24-20-6w	*	3658
RUSH COUNTY—		
Milmac Oil Co. et al, Mohr 1, c nw, 11-18-16w	¶24	3507
SEDGWICK COUNTY—		
Smith, Ash et al, Tripp 1, ne c sw, 22-26-2e	85	3315
Continental Oil Co. et al, Reed 7, ne sw se, 1-26-1w	680	3372
Continental Oil Co. et al, Shawver 10, se sw nw 7-26-1e	190	3360
C. B. Davis, Van Arsdale 1, sw c ne se, 14-27-1w	*	3587

Tabulation and Comparison on Page 42

Company, Well and Location	Initial Production Bbls.	Depth
WASHINGTON COUNTY—		
Vincent et al, Linn 1, nw c ne, 27-4-3e	*	3100

OKLAHOMA

Company, Well and Location	Initial Production Bbls.	Depth
BECKHAM COUNTY—		
Martin and Key, Martin 1, cel nw, 32-8-24w	*	3335
CARTER COUNTY—		
Carter Oil Co., Cobb 1, sw ne se 30-1s-3w	*	4018
Carter Oil Co., Awana 1, ne c nw, 30-1s-3w	*	3338
CADDO COUNTY—		
Noble and Olson, Rowe 3, nw se ne, 36-6-10w	175	3439
Magnolia Pet. Co., Miles 3, se ne nw, 36-6-10w	*	4215
COTTON COUNTY—		
Thomas Medlin, John 1, sw c se, 8-2s-9w	*	2527
CREEK COUNTY—		
Holmes and Burton, Brightman 1, nw ne ne, 30-19-10e	150	2213
O. M. Ireland, Smith 2, cnl sw se 11-17-10e	12	1994
Foster Petroleum Co. et al, Hinton 1, ne se se 26-19-8e	*	3100
F. B. Murta et al, Page la, se sw nw 34-16-10e	*	2230
GARFIELD COUNTY—		
Continental Oil Co., Looman 1, ne c se, 9-20-4w	*	5738
Continental Oil Co., Miller 1, sw c, 12-20-4w	*	4586
JEFFERSON COUNTY—		
O. V. Beck, Seay 7, sw c ne se sw, 34-6s-5w	290	1524
MARSHALL COUNTY—		
F. W. Merrick, Null 13, nw c se nw, 24-5s-5e	60	568
Fleming and Kimball, Null 3, se c sw ne nw, 24-5s-5e	65	627
Golden Rule Oil Co., Gray 1, nw se ne, 19-6s-6e	*	765
McINTOSH COUNTY—		
Jennings Brothers, Self 1, se nw sw, 31-10-14e	*	4625
MUSKOGEE COUNTY—		
C. O. Buckles, Lowery 2 (OWDD), nw c sw, 9-15-15e	10	1675
W. H. Hooker, Townlot 1, sw c, 27-15-18e	*	1101
C. D. Bradley, Robinson 1, ne c sw se, 20-15-19e	*	1195
OKFUSKEE COUNTY—		
W. C. Newman Oil Corp., Sarcy 1, se c sw, 19-12-12e	25	1668
Moffett et al, Wilson 1a, ne c sw ne, 26-11-11e	10	2023
Atlantic Oil Prod .Co., Jackson 1, nw c sw 35-11-11e	¶98½	3033
Fern Oil Gas Co., Turner 2, c se se, 24-11-10e	*	3749
Summitt Drilling Co., Pigeon la, se nw sw, 23-11-11e	*	2500
T. P. Adams, et al, Carson 1, nw c se, 1-10-11e	*	1800
OKLAHOMA COUNTY—		
Cromwell-Franklin Oil Corp., Trosper Park 10, nw c se, 12-11-3w	18,000	6304
Indian Territory Illuminating et al, A. Bodine 7, se nw se, 24-11-3w	1378	6472
Coline Oil Co., Clauer 2, nw c se, 25-11-3w	5130	6437
Sinclair Oil & G., School land 3, nw ne ne 36-11-3w	10,470	6561
Indian Territory Illumin. et al, Emmerson 3, sw c, 30-11-2w	4408	6523
T. B. Slick et al, Hoopes 1, sw c ne, 31-11-2w	13,012	6606
OKMULGEE COUNTY—		
Prince et al, Smith 4, nw c se, 21-12-14e	¶½	712
Miller et al, Powell la, ne c 31-16-12e	*	2705
OSAGE COUNTY—		
A. G. Oliphant et al, 1, sw nw sw, 11-21-8e	390	2326
Zika and Neeley, 2, ne nw sw, 12-21-11e	35	1738
Peters Pet. Co., 10, se ne se, 22-27-11e	40	1717
Duffield and Howard, 1, ne c nw, 29-29-6e	*	2886
PONTOTOC COUNTY—		
Benedum and Trees, Homedy 1, se sw sw 27-5-5e	*	3010
POTTAWATOMIE COUNTY—		
Commerce Development Co., Townlot 1, nw se nw, 8-9-5e	325	4400
Magnolia Pet. Co., Peck 1, sw c nw, 6-8-5e	30	4030
Atlantic Oil Prod. Co., McGee 1, nw c se, 4-7-4	250	4049
Sinclair O. & G., Morgan 1, ne c sw, 4-7-4e	375	3863
Sinclair O. &G., Morgan 2, nw ne sw, 4-7-4e	35	4238
Sinclair O. & G. et al, Shimer 1, nw c, 17-9-5e	*	4383
Independent O. & G. et al, Asher 1, ne c, 3-7-4e	*	4294
SEMINOLE COUNTY—		
Carter Oil Co. et al, Jackson 8, sw nw ne, 11-7-6e	*	3175
Gypsy Oil Co., Taylor 1, se ne sw, 19-9-6e	1385	4159
Gypsy Oil Co., Taylor 2, ne se sw, 19-9-6e	2202	4154
Amerada Pet. Corp. and Dixie Oil Co., Fullerton 4, se ne se 19--9-6e.	845	4191
Mid-Continent Pet. Corp., Eleck 3, nw ne se, 23-7-6e	30	3192
Gypsy Oil Co., Walker 5, ne sw se, 5-7-7e	1430	3161
Gypsy Oil Co., Walker 6, nw sw se, 5-7-7e	1440	3170
Sinclair O. & G., Phillips 7, se c 5-7-7e	675	3285
Sinclair O. & G., Phillips 8, sw se se 5-7-7e	30	3300
Sinclair O. & G., Phillips 10, nw se se, 5-7-7e	360	3260
Harris et al, Roberts 1, nw ne nw, 16-6-6e	370	2912
Champlin O. & R. et al, Sachemeche 4, nw se sw, 9-6-6e	90	3039
Champlin O. & R., Sachemeche 5, sw se sw, 9-6-6e	300	2933
W. B. Pine, Cheparney 1, se ne sw, 12-517e	¶12	2685
STEPHENS COUNTY—		
Smythe and Nash, Johnson 1, ne c, 30-2n-8w	15	2483
Magnolia Pet. Co., Worrell 6, se c sw nw, 19-1s-9w	¶4	1178
Heydrick et al, Poole 4, sw sw sw, 35-1s-8w	70	1924
Atlantic Oil Prod., Brittain 1, ne c, 16-2s-6w	500	2885
American Pipe Line Co., Nigh 10, ne c se nw, 34-1s-8w	*	2475
Wirt Franklin Pet. Corp., Brooks 2, se c ne, 8-2s-6w	*	3690
WAGONER COUNTY—		
Tulsa Drilling Co., Walker 1, nw ne nw, 23-18-17e	¶43	750
Charles Harris, Tucker 3, c nw sw 30-18-18e	*	760

EASTERN STATES

MICHIGAN

Company, Well and Location	Initial Production Bbls.	Depth
ISABELLA COUNTY—		
Dixie Oil Co., Davis 1	150	....
Pure Oil Co., Rayner C-1	200	....
Iosso Land Co B-2	100	3524
Chippewa O. & G., Joslyn 8	300	....
MIDLAND COUNTY—		
Pure Oil Co., Anthony 1	75	3550
Geneva Oil Co., Marken 1	*	....

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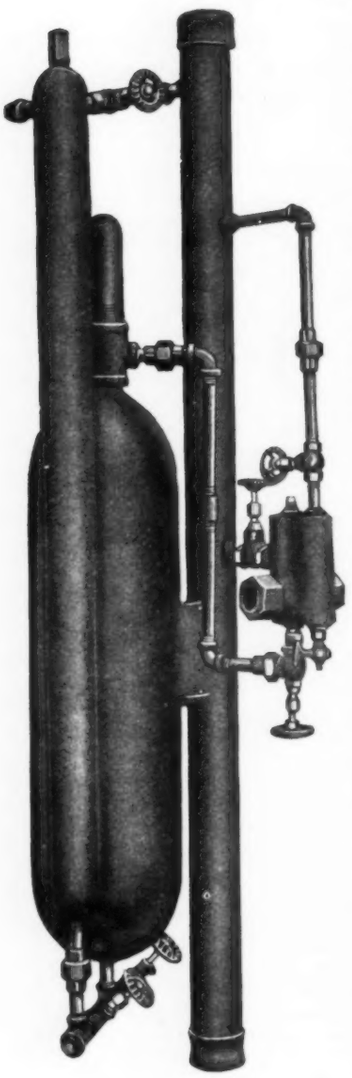
1. TIME
2. TROUBLE
3. SHUT - DOWNS
4. DELAYS
5. ENGINE WEAR
6. And MONEY



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J. Henry, Duncan, Okla.
Summitt Drilling Co., Tulsa
G. J. Beard, Duncan, Okla.
Hubbard & Woffard, Tulsa
Herman Wagner, Okla. City
Byers Drilling Co., Okla. City
A & B Drilling Co., Okla. City
Capitol Drilling Co., Okla. City
Prince & Prince, Electra, Tex.
Clark & Cowden, Duncan, Okla.
Hartman & Hamilton, Seminole, Okla.
Independent Oil Co., Okla. City
G. E. Gilberth, Okla. City
Golden & Cochran, Wink, Texas.
Haynes Drilling Co., Wink, Texas.
Murphy & Graham, Seminole, Okla.
Steinberg & Yerkee, Seminole, Okla.
Fain McGaha, Wichita Falls, Texas
Alleson & Clevinger, Seminole, Okla.
Winkler & McQueen, Duncan, Okla.
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Herndon Drilling Co., Seminole, Okla.

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"BOOMERS"

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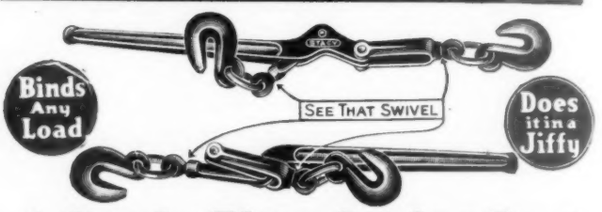

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Stacy Swivel Load Binders have many practical Oil Field uses. They make hauling safe and save time and work by binding any load quickly, easily, securely. No load is too big or too heavy for this indispensable tool. Photograph below shows how the Stacy Binder holds a pipe welding clamp firm. Made in 5 sizes, weighing from 2 lbs. to 14 lbs. for each single tool, not for a pair as commonly quoted, sold and used.

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PENNSYLVANIA

Company, Well and Location	Initial Production Bbls.	Depth
BRADFORD FIELD—		
Loop & Bell, Hoffman 3	2	....
Blaisdell Oil Co., Blaisdell 2	3	....
Don Huffman Est., Hoffman 7	2	....
Martin & Bryner, Martin 5	7	....
Robt. Russell, Lamphrey 3	8	....
Kepner Oil Co., Kepner 11	3	....
Kepner 12	3	....
A. Williams, Borden 6	2	....
H. E. Kemp Est., Bingham 18	5	....
Bingham 19	3	....
South Penn Oil Co., Rounds 1	10	....
Keating 6	2	....
Northwestern Mining 11	7	....
Fee 113	3	....
Hazlewood Oil Co., Lot 1, tr 61	2	....
Bingham 186, tr 51	3	....
S. H. Elder & Co., Elder 21	5	....
Dieter Bros., Dieter 16	3	....
Rob Roy, Roy 8	5	....
T. H. Givins, Givans 1	32	....
P. A. Oaks & Son, Bingham 593, tr 1	7	....
Bradford Producing Co., Daniels 1	5	....
Zook-Sloan Co., Willetts 9	4	....
Johnson & Wright, Wright 1	2	....
G. W. Smith Est., Smith 13	8	....
L. G. Schenfield, Fee 14	7	....
Mary C. Reidy, Fee 5	3	....
Pure Penn Oil Co., Kinley Oil 7	4	....
Healey Pet. Corp., Newman 1	2	....
Associated Producers Co., Bingham 593, tr 31	2	....
Moody & Bucher, Fee 3	2	....
J. A. Walters Est., Fee 33	3	....
W. C. Kennedy Co., Quintruple, (2 wells)	4	....
Hilliard & Co., Ross 1	2	....
Alma B. Collins, Bingham 577, tr 1	3	....
H. J. Walter, Kinley 1	3	....
Bradford Producing Co., Mitchell 1	3	....
W. M. Howard, Quintruple 1	2	....
McKean Prod. Co., Quintruple 1	2	....
Minard Run Oil Co., Tibbitts 7	2	....
Stoddard 5	2	....
Healey Pet. Corp., Fee 1	2	....
Quintruple 1	2	....
VENANGO-CLARION COUNTIES—		
C. F. & C. Oil & Gas Co., Helscel 10	2	....
H. O. Fisher, Fisher 4	*	....
W. B. & F. E. Kapp, Korb 15	¶1	....
S. Y. Ramage, Lot 73, tr 97	2	....
Berlin, Altman & Co., Scott 3	2	....
WASHINGTON COUNTY—		
H. V. Sprowls & Co., Logue 1	30	....
BUTLER COUNTY—		
J. L. Peters & Co., Boehm 6	*	....
BEAVER COUNTY—		
Rossoma, Rossomme 5	2	....
J. L. Abrama, Davidson 1	*	....

NORTHWESTERN OHIO

Company, Well and Location	Initial Production Bbls.	Depth
SENECA COUNTY—		
Keith & Salladay, Bookmeyer 1	1	....
Marvela O. & G. Co., Saul 4	*	1516
Hulse & Co., Abbott 2	*	....
C. L. Williams, Frederick 1	*	....
HANCOCK COUNTY—		
Ridge Gas & Oil Synd., Cross 4	45	....
Star & Clark, Stauffer 18	25	1375
L. Cramer, Shank 6	20	1380
SANDUSKY COUNTY—		
J. H. Murphy & Sons, Fry 1	*	....
A. C. Richards & Co., Drace 1	10	1384
Security Oil Co., Miller 1	5	1340
LUCAS COUNTY—		
Doblinger & Co., Black 2	10	1266
AUGLAIZE COUNTY—		
Frank Wahrer, Fee 7	10	1187

INDIANA

Company, Well and Location	Initial Production Bbls.	Depth
VIGO COUNTY—		
Sinsi Oil Corp., Riggs 17	150	2250
GIBSON COUNTY—		
Rogers & Randall, Williams 4	46	1355
Big Four O. & G. Co., Sloan 2	¶¼ & 20	1253
PIKE COUNTY—		
McNaughton & Co., Morrison 1	25	1168
Mahutska Oil Co., Hill-Ford 3	150	1319
S. A. Lee & Co., McAtee 3	¶1	1352
C. C. Taliaferro, McAtee 4	¶¾	1350
Demot 1	¶¾	1072

ILLINOIS

Company, Well and Location	Initial Production Bbls.	Depth
ST. CLAIR COUNTY —		
Ohio Oil Co., Frye 5	25	744
Gaskill 4	25	725
WABASH COUNTY—		
Highland O. & G., Mullinax 4	*	1732
W. C. McBride, Inc., Cisil 8	5	1482

NEW YORK

Company, Well and Location	Initial Production Bbls.	Depth
ALLEGANY COUNTY—		
Herbert Spring, Spring 3	2	....
Thropp & Bucher, Lippert 2	2	....
E. L. Stephens & Co., Kurthaltz 1	2	....
Currie Burns, First Nat. Bank of Shinglehouse 8	2	....
Forest Oil Corp., Fee 1	2	....
Gallets, Buffington & Co., Yokee 1	2	....

WEST VIRGINIA

Company, Well and Location	Initial Production Bbls.	Depth
RITCHIE COUNTY—		
H. N. Rinehart, Donnelly Hrs. 3	2	....
J. G. Charten, Foutty 5	4	....
W. H. Bickel, Wienrick 2	¶3	....
Hope Nat. Gas Co., Cain 2	¶½	....
Bradley 6	15	....
BOONE COUNTY—		
G. L. Cabot, Inc., Federal Coal 35	¶¼	....
Pure Oil Co., L. H. & P. tr B-34	¶¼	....
H. L. & P. tr A-38	10	....
GILMER COUNTY—		
Carnegie Nat. Gas Co., Burton 3	¶1¼	....
Young 1	*	....
Trainer Oil & Gas Co., Snyder 1	*	....
DODDRIDGE COUNTY—		
Wilson & Breadwater, Yeater 1	¶¼	....
J. D. Foley, Dotson 1	5	....
LINCOLN COUNTY—		
Russell Gas Co., Stump 1	¶¼	....
South Penn Oil Co., Egnor Hrs. 1	2	....
KANAWHA COUNTY—		
United Fuel Gas Co., Numa Black Coal 3965	¶¼	....
Numa Black Coal 4052	¶1	....
WAYNE COUNTY—		
Wayne United Gas Co., Wison 10	*	3400
Wilson 17	¶1	....
MONONGALIA COUNTY—		
Philadelphia Gas Co., Moore 5	*	....
Pittsburg-West Virginia Gas Co., Clovis 1	*	....
ROANE COUNTY—		
Heck Oil Co., Enoch 6	175	....
WETZEL COUNTY—		
Stewart Oil & Gas Co., Stewart 1	¶1½	....
MARSHALL COUNTY—		
Manufacturers Light & Heat Co., Chambers 3	¶1¼	....

KENTUCKY

Company, Well and Location	Initial Production Bbls.	Depth
DAVIESS COUNTY—		
Onsel Bros. & Co., Taylor 1	50	....
C. E. Daugherty, Taylor 2	40	....
Benjamine Wright & Co., Ambrose 3	30	....
White & Co., Ramer 1	*	750
Hupp & French, Ware 1	15	....
Leeper Oil Co., Salmon 1	20	....
Eastern Gulf Oil Co., Tyler 2	20	....
Henry Stimson, Jackson 1	*	....
HENDERSON COUNTY—		
Wittmer O&G Co., Baskett 1	*	....
K. M. Dole & Co., Sopher Hrs. 1	*	....
WARREN COUNTY—		
Fred Hensgen & Co., Rector 1	*	....
HANCOCK COUNTY—		
S. T. McGill Co., Rosenblatt 3	5	....
CHRISTIAN COUNTY—		
C. H. Young & Co., Cross 1	¶2	561
OHIO COUNTY—		
Smith & Co., Dawson 5	200	....
Dawson 6	225	....
Cumberland Pet. Co., Lloyd 2	200	....
Lloyd 3	75	....
Wade 10	200	....
C. M. Root & Co., Wiggington 7	150	....
Wiggington 8	50	....
Steele 6	100	....
J. C. Ellis, Howard 6	70	....
Hickey 1	¶1	....
Burdette 1	*	....
Oliver Jenkins, Royal 1	¶¼	....
Hupp & Duff, Whitehouse 1	5	....
Stewart 6	75	....
Stewart 7	40	....
Louisville Gas & Electric Co., Miller 5	5	....
George Randolph & Co., Brown 1	*	....

SOUTHEASTERN OHIO

Company, Well and Location	Initial Production Bbls.	Depth
MONROE COUNTY—		
Ohio Fuel Gas Co., Holschul 1	¶¼	1801
Marion M. Fisher & Co., Fisher 7	1	1450
Shay McMullen, Hoff 8	*	1995
James Wittenbrook, Friday 6	*	1511
Sylvania Producing Co., Winland 6	40	....
NOBLE COUNTY—		
Ohio Fuel Gas Co., Brown 1	5	881
Mercer Oil Co., Crum 9	10	213
Local Oil Co., Woods 3	*	134
WASHINGTON COUNTY—		
Square Deal Oil Co., Edwards Hrs. 15	*	....
S. E. Edwards & Co., Bird 15	2	....
McTaggart & Co., Zinn 5	1	690
Herlan & Co., Ward 33	*	....
MORGAN COUNTY—		
Bode & Co., Allen 1	2	....
Pure Oil Co., Bush 7	16	1350
JEFFERSON COUNTY—		
Harry E. Tope & Co., Edmer 3	2	....

CENTRAL OHIO

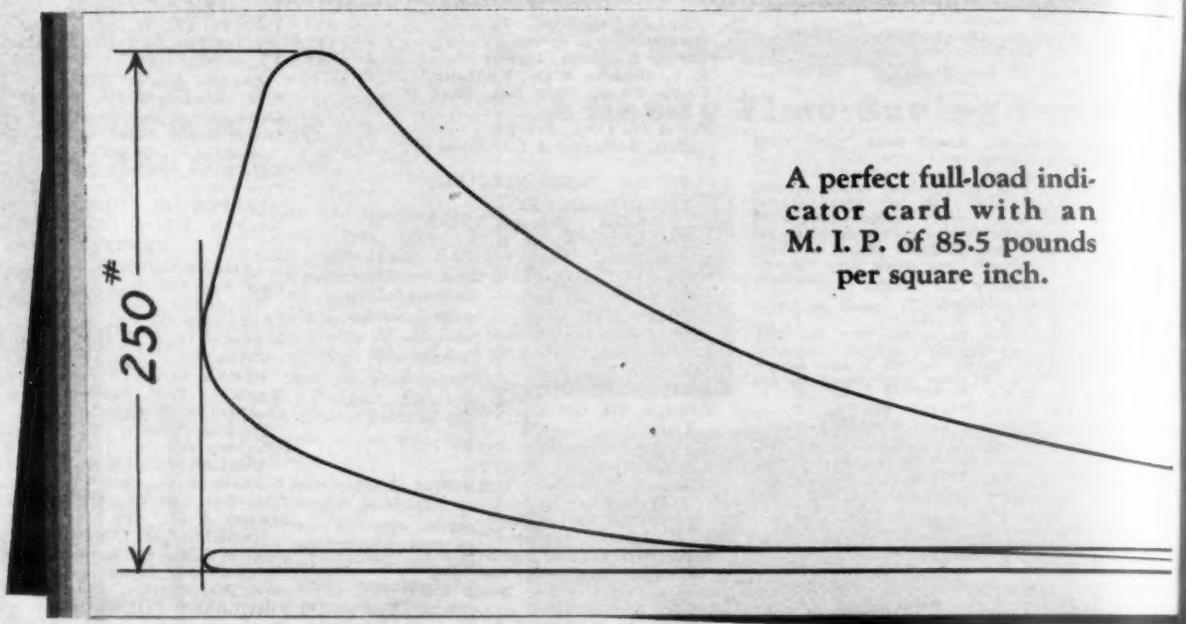
Company, Well and Location	Initial Production Bbls.	Depth
ATHENS COUNTY—		
Ohio Fuel Gas Co., Beasley 2	¶¼	1393
Henry 2	¶¼	1615
Co-operative Oil Co., Nelson 1	2	....
Townsend O. & G. Co., Penrod 9	6	....
Castle 8	1	181
PERRY COUNTY—		
Westbrook Bros., Frash 1	50	....
Chartiers Oil & Gas Co., Hocking Products 216	13	3472
Allegheny Oil Co., Longstreth 3	3	....
ASHLAND COUNTY—		
Robinson & Co., Smith 3	*	....
Ohio Fuel Gas Co., Guthrie 2	¶½	....
Meltzer & Co., Ott 5	30	795
MUSKINGUM COUNTY—		
William Kline & Co., Ramsbottom Pottery 3	187	3621
Ohio Fuel Gas Co., McCoy 1	¶½	3473
GUERSEY COUNTY—		
North Salem Oil Gas, Gray 6	50	3423
East Ohio Gas Co., Gaad & Co. 1	110	3570
WAYNE COUNTY—		
Ohio Fuel Gas Co., Nartin 1	¶¾	....
Blue 1	¶¾	....
LORAIN COUNTY—		
Kemrow Co., Bailey 1	¶¼	2397
Daugherty Co., Strong 1	¶4¼	2309
SUMMITT COUNTY—		
East Ohio Gas Co., Kepler 2	¶2¼	4019
Harmon, George & Co., Vansickle 1	*	4094
VINTON COUNTY—		
Wittmer O. & G. Co., Herrold 3	¶2	....
KNOX COUNTY—		
N .C. Farmer & Co., Stanley 3	¶¼	....
Upham Gas Co., Criss 3	*	2854
COSHOCTON COUNTY—		
Bell Bros., Stockman 1	8	914
HOLMES COUNTY—		
Arkansas Fuel Oil Co., Miller 7	¶¼-3	3552
BELMONT COUNTY—		
W. C. McBride, Inc., Hadsell 1	¶⅜	1208
STARK COUNTY—		
Clinton O. & G. Co., Smith 2	¶3½	3994
TUSCARAWAS COUNTY—		
Ohio Fuel Gas Co., Meek 1	¶1½	3651

COMPLETIONS

NORTH LOUISIANA

BOSSIER PARISH (Bellevue)—		
R. L. Crook, Larkin 12, 14-19-11	12	405
CADDO PARISH (Pine Island)—		
Shreveport Oil Corp., Hicks 4, 32-21-15	125	2117
CADDO PARISH (Greenwood)—		
Calatex O&G Co., Taylor-Trosper 1, 7-16-16	¶23	2990
MOREHOUSE PARISH (Monroe)—		
Louisiana G&F Co., Crossett Lbr. Co. 25, 29-21-5e	¶1	2391
J. A. Noe et al, Wright 1, 27-20-4e	¶34	2152
OUACHITA PARISH (Monroe)—		
Louisiana G&F Co., Breard 1, 46-18-4e	¶2	2175
United Carbon Co., Spade 4, 6-18-4e	¶2	2203
RICHLAND PARISH—		
Ark. La. Pipe Line Co., E. A. & F. B. Sartor B-3, 24-16-6e	¶50	2450
SABINE PARISH (Pleasant Hill)—		
Magnolia Pet. Co., McLeroy 2, 33-10-12	30	3279
UNION PARISH (Monroe)—		
United Carbon Co., McInnis 1, 19-20-4e	¶5	2141

THE "INSIDE" STORY



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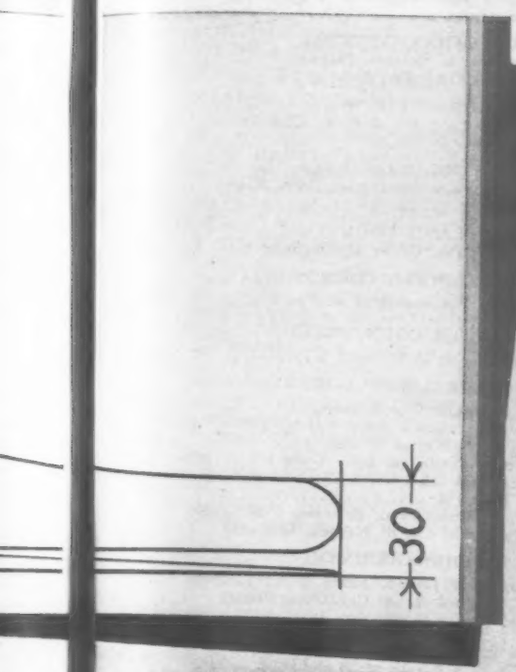
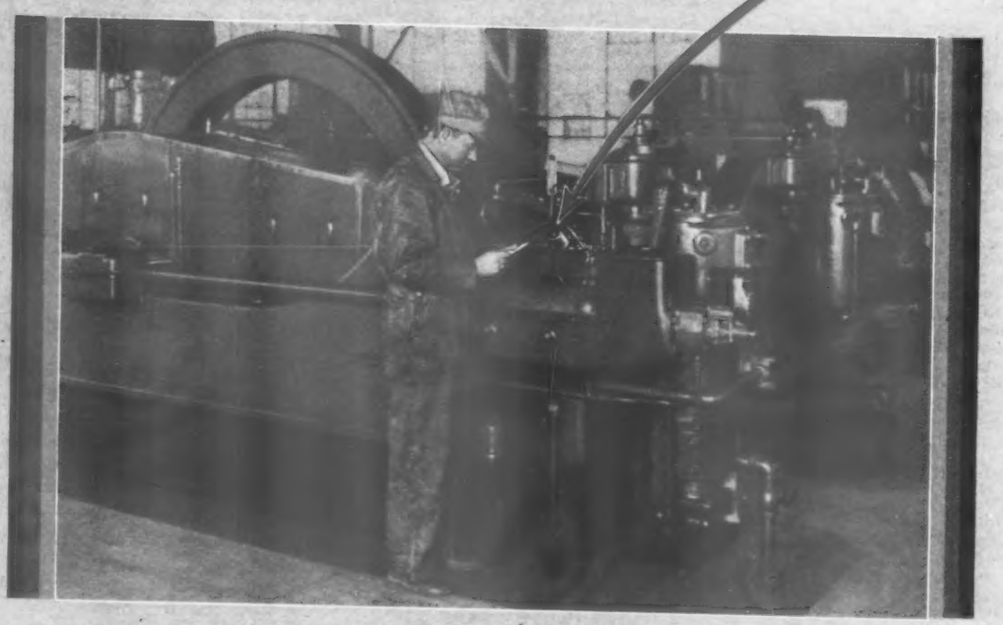


As told by the Indicator Card



BESSEMER

ARKANSAS

Company, Well and Location	Initial Production Bbls.	Depth
UNION COUNTY (Smackover)—		
E. L. Chapman, Bradley 2, 2-16-16..	15	2028

SOUTH LOUISIANA

Company, Well and Location	Initial Production Bbls.	Depth
EVANGELINE—		
Cline, Smith & Cline, Conklin 10....	*	3260
HAGER DOME—		
The Texas Co., St. Martin Ld. Co. Fee 1, Sec. 28-9s-7e	*	6612
BLACK BAYOU—		
Shell, Watkins 14	*	1071
STARKS DOME—		
Gulf, Lutcher-Moore 20	40	1200
Texas Gulf-Sulphur Co., Lutcher-Moore 14	*	1412
Industrial Lbr. Co. 2	*	1634

TEXAS

TEXAS GULF COAST

Company, Well and Location	Initial Production Bbls.	Depth
BARBERS HILL—		
Sun Oil Co., J. Wilburn 3	160	5379
BATSON—		
Paraffine Oil Co., Heywood 35....	3	930
BIG CREEK—		
Benedum & Trees, Moore 1	*	4020
HULL—		
Houston Prod. Co., Barngrover 13, dd	300	3920
FANNETT—		
Gulf, G. W. Junker et al A-1.....	*	4640
SOUR LAKE—		
Gilbert Oil Corp., Fee 106, dd.....	6	750
Minor Oil Co., Fee 68½, dd.....	5	1020
SOUTH LIBERTY—		
Mecom Oil Co., Barrett 1, dd	*	3100
SPINDLE TOP—		
Yount-Lee Oil Co., McFadden 97, dd	120	3040
McFadden 128	250	2580
SUGAR LAND—		
Humble, Bankers Mortgage B-3 ...	750	3717
ESPERSON DOME—		
Cranfill-Reynolds Co., Moores Bluff Corp. 2	200	2345
Yount-Lee Oil Co., Moores Bluff Corp. 2	85	3342
BIG HILL—		
The Texas Co., Pipkin 2	*	6010
CLAY CREEK—		
Sun Oil Co., Grote 8	300	....
RACCOON BEND—		
Humble-Valley, Thompson 6.....	543	3430
REFUGIO—		
Union Producing Co., Rose Lambert 1-A	120	6468
Shelly 4	500	3647
Pearson Properties, Inc., Johnson 1, Blk. 11	300	3690
Ed Price, Mission River 1	*	2704
Fox & Heflin, Fannie Heard 1	600	3700
Houston Oil Co., Dorsey 1, Blk 78..	450	3695
Independent O. & G. Co., West 3..	100	3686
HUMBLE—		
The Texas Co., Kohler 16, wo.....1080		3070
Southern Drlg. & Prod. Co., Alco 1.1000		3978

WEST TEXAS

Company, Well and Location	Initial Production Bbls.	Depth
CRANE COUNTY—		
Gulf Prod. Co., McElroy 73	310	2982
ECTOR COUNTY—		
Humble-Penn-Atlantic, Kloh 2-D ..	785	3730
R. L. York 2	600	3693
R. L. York 3	625	3755
GLASSCOCK COUNTY—		
F-H-E Oil Co., Roberts 2-C	40	1847
Schermerhorn Oil Co., Kloh 3 1750		2485
HOWARD COUNTY—		
Simms Oil Co., Clay 2	40	3160
PECOS COUNTY—		
Landreth Prod. Corp., University 1-E	500	1710
Southern Crude Oil Pur. Co., Tippett 4-A	500	375
Transcontinental & Arkansas Fuel Oil Co., Smith 3	40	1531
Smith-Mathews 1-A	¶43	1520

CENTRAL EAST TEXAS

Company, Well and Location	Initial Production Bbls.	Depth
VAN ZANDT COUNTY—		
Shell Pet. Corp., B. M. Fowler 1...5000		2887

NORTH TEXAS

Company, Well and Location	Initial Production Bbls.	Depth
ARCHER COUNTY—		
Fain-McGaha Oil Corp., Ray 1	*	1506
Golding & Cochran, Phillips 1	*	1201
Lawson-Duke et al, Young 3	20	1405
J. H. Massie et al, Richardson 2...	260	1377
Prairie O&G Co., Clark-Richardson 9	*	1439
Shappell Oil Co., Prideaux 14	*	693
Prideaux 15	10	681
Simms Oil Co., Fish 1	*	1453
Underwood Drlg. Co., Farmer 1....	*	1500
BAYLOR COUNTY—		
Madden & Rose, Fancher 1	*	1600
COOKE COUNTY—		
Sun Oil Co., Milburn 1	20	1219
JACK COUNTY—		
C. W. Boller et al, Raley 4	40	3278
Panhandle Ref. Co., Eaton-Daniels 4	100	3112
T. G. Shaw et al, Loving 1-A.....	*	3350
THROCKMORTON COUNTY—		
Martin et al, Crowsin 1	*	568
WICHITA COUNTY—		
W. H. Hammon et al, Mitchell 12..	20	1319
Hiland Oil Co., Crudup 5	65	1812
G. H. Howell et al, Allen-Foster 1 ..	3	896
Allen-Foster 2	15	469
WILBARGER COUNTY—		
Atlantic Oil Prod. Co., Waggoner-Sigler 9	100	2705
Dixie Oil Co., Waggoner 1-M	*	2385
Empire Gas & Fuel Co., Waggoner 31-B	90	2306
Fain-McGaha Oil Corp., Waggoner 18-L	120	2322
Grayback Dev. Co., Waggoner-Bud 2	80	2713
Waggoner-Eason 1-A	*	2205
Venmex Oil Co., Waggoner 1-H...	*	2450
YOUNG COUNTY—		
Bolin & Lindsey, Wolf 2	15	886
Brihill Oil Co., Robinson 1	30	741
Halmack Oil Co. et al, Carpenter 2	10	895
Hamilton & Anderson, Carpenter 1	*	1025
Howard Pet. Co. et al, Lowe 1	*	715
Independent O&G Co., Lowe 1	35	637
Jones & Sharp, Kunkel 1	*	1303
C. B. Long et al, Hausler 3	*	1100
Mid-Tex O&G Co., Donnell-Childress 5	210	3325
Amos Mitchell et al, Dunagan 2...	20	946
Panhandle Ref. Co., Watson 1	10	706
A. H. Parks et al, Hall 1	25	895
Pennell et al, McLaren 1	*	2680
Petroleum Prod. Co. & Madden, Deitrich 5	45	1120
Prairie O&G Co., Kunkel 7.....	4	1152
E. R. Riggs et al, Keeter 7	50	884
Riner & Bailey, Keith 1	*	725
H. F. Rogers et al, Dilbeck 1	*	1101
Scott & Nance, Payne 6	*	4300
Stump & Heydrick, Daniels 5	65	893
C. C. Williams et al, Taack 3	20	672
D. L. Wolf et al, Hill 5	40	1022
Womac Oil Co., Stephen-Roach 4..	30	737

TEXAS PANHANDLE

Company, Well and Location	Initial Production Bbls.	Depth
GRAY COUNTY—		
Danciger O&R Co., W. Jackson 11..	175	3025
Gulf Prod. Co., J. B. Bowers 1 1200		3081
Magnolia Pet. Co., W. W. Harrah 4, ...	¶1-60	3250
J. E. Wright 5 1500		2860
HUTCHINSON COUNTY—		
American Ref. Properties, Inc., Weatherly 7	50	3000
Gulf Prod. Co., W. E. Herring 1-A	*	3320
WHEELER COUNTY—		
Fain-McGaha & Murchison, Close 9, ...	¶10	1693

SOUTHWEST TEXAS

Company, Well and Location	Initial Production Bbls.	Depth
DUVAL COUNTY—		
Driscoll, Fee 11, Sec. 448.....	¶40	2461
Humble, Kohler 43	10	1750
DARST CREEK—		
Sun Oil Co., Knoblock 6 4100		2600
WEBB COUNTY—		
O. W. Killam, Bruni 1, blk 33.....	*	3528
ZAPATA COUNTY—		
Dr. Edgington, Trevino 2, Sec. 412	150	1246
ATASCOSA COUNTY—		
Amphion Oil Co., Sam Schlisser 1..	*	2310
BASTROP COUNTY—		
H. C. Cates et al, C. L. Lackey 1 ..	*	2708
KARNES COUNTY—		
Morgan et al, Toms (Ray) 1.....	*	3249

CENTRAL WEST TEXAS

Company, Well and Location	Initial Production Bbls.	Depth
BROWN COUNTY—		
Baker Bros. et al, Hall 3	*	537
Greene Prod. Co., McCulley 2	10	1703
Hynes et al, Marr 1	20	1209
Phillips Pet. Co., Williams 1-B....¶1½		1137
Venmex Oil Co., Hickman 25-A ...	5	1261
Young Bros.-Alexander & Woodley, Hickman 25	150	1310
CALLAHAN COUNTY—		
Bateman & Humble, Jackson 2	*	1191
Humble O&R Co., Jackson 2-G	*	1280
COLEMAN COUNTY—		
Greene Prod. Co. & E. L. Chapman, Barton 1	*	2007
COMANCHE COUNTY—		
Producers & Contractors Corp., Cogburn 1	¶1	2710
EASTLAND COUNTY—		
Phillips Pet. Co. et al, Stracener 1..	*	3145
PALO PINTO COUNTY—		
W. H. Pennington et al, Fee 1	10	1287
PARKER COUNTY—		
Bratcher et al, Womack 1	*	2400
SHACKELFORD COUNTY—		
Albany Oil Co., Reynolds 1-C	*	1273
Geo. Callahan & Amon Carter, Nail 1	*	956
L. D. Hill et al, Walker 2	*	808
Roeser-Pendleton, Inc., Scott 1	40	1610
Sedgwick O&G Co. & Webb, Morris-Buie 1-A	*	1704
E. J. Stump et al, Brewster 1	200	2119
Union Oil Co. of Nevada, Grimes 1	*	1316
STEPHENS COUNTY—		
Loftin & Jordan, Smith 1 .....¶3¼		2241
T. P. Coal & Oil Co., Chas. Binney 77	*	3490

Government Reports on Kern County Geology

A report on the geology of a portion of Kern County, California, south of Bakersfield, has just been issued by the Department of the Interior as Geological Survey Bulletin 812-D. This report is entitled "Geology and oil resources along the southern border of San Joaquin Valley, California," and may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., for 50 cents.

The area described includes a part of the south end of San Joaquin Valley and the adjacent foothill belt of the San Emigdio and Tehachapi Mountains and the Sierra Nevada. This foothill belt displays portions of the rugged granitic cores of the mountains and also sedimentary rocks of Tertiary and later age, which measure some 29,000 feet in thickness.

The San Emigdio and Tehachapi Mountains from a geologic as well as geographic link between the coast range on the west and the Sierra Nevada on the east, for in these mountains there is a gradual eastward transition from the complex structural features of the coast range to the comparatively simple structural features of the west flank of the Sierra Nevada.

Although several areas in the region described in the report are stated by H. W. Hoots, the author, to have possibilities for commercial production of oil, Wheeler Ridge is at present the only oil-producing area.

PERMITS GRANTED FOR NEW WELLS

ARKANSAS

OUACHITA COUNTY—W. D. Winfield, El Dorado, Ark., Watts 2, 300 s 150 e nwc sw se 27-15-15. W. W. Winfield, El Dorado, Ark., Watt 3, 700 e 150 n swc sw se 27-15-15.

UNION COUNTY—Joe Modisett Drilling Co., El Dorado, Ark., Union Sawmill 1, 200 e 200 n swc ne ne 14-18-14. Joe Modisett Drilling Co., El Dorado, Ark. Union Sawmill 2, 200 s 200 w nec sw ne 14-18-14.

CALIFORNIA

BARDSDALE—General Pet. Corp., J. B. 1, 6-3-19.

ELLWOOD—Bankline Oil Co., No. 89-3, 15-4-29. Pacific Western Oil Co., No. 92-3, 16-4-29. Bolsa Chica Oil Corp., Augur 1-A, 25-4-29.

KERN RIVER—C. C. M. O. Co., No. 33, 23-28-27.

LONG BEACH—Devonshire Oil Co., No. 1, 29-4-12.

LOS ANGELES COUNTY—Pachard Oil Co., Ltd., No. 1, 17-4-13.

MIDWAY—C. C. M. O. Co., No. 9, 7-32-23. Standard Oil Co., No. 99, 1-32-23.

NEWPORT—H. L. Hall, et al., No. 1, 20-6-10.

NEWHALL—H. C. Hicks, Lillie 1, 8-3-15,

PLAYA DEL REY-VENICE—E. A. Featherstone No. 1, 21-2-15.

SANTA FE SPRINGS—George F. Getty, S. F. S. 49, 6-3-11.

SANTA PAULA—Wheeler Canyon Oil Co., No. 18, 24-4-22.

TEHAMA COUNTY — Orland Oil Syn., Ltd., No. 1, 31-23-3.

LOUISIANA

BIENVILLE, PARISH—W. A. Nichols Tr., El Dorado, Ark., A. McDermott 1, 28-18n-6w, 200 ft n and 180 ft e of center of ne¼ of ne¼.

BOSSIER PARISH — Andrews & Davlin, Myra, J. H. Nattin 1, 15-22n-14w, 100 ft n and 250 ft w of center of Sec. Arkansas Fuel Co., Shreveport, L. F. Barnett 2, 36-23n-12w, 290 ft s and 308 ft e of nw c nw ne. Arkansas Fuel Oil Co., Shreveport, O. J. Kilgore A-3, 30-23n-11w, 330 ft s and 235 ft e of nw c se sw; O. J. Kilgore A-4, 30-23n-11w, 100 ft n and 1330 ft e of sw c se sw; O. J. Kilgore B-4, 31-23n-11w, 300 ft e and 200 ft n of sw c ne nw; O. J. Kilgore B-5, 31-23n-11w, 330 ft n and 957 ft e of sw c ne nw; J. W. Peyton No. 4, 30-23n-11w, 200 ft n and 150 ft e of sw cor nw¼ of sw¼. R. L. Crook, Shreveport, La., Larkin 12 (amended permit), 14-19n-11w, 600 ft n and 200 ft e of sw c nw sw. La. G&F Co., Shreveport, Thigpen-Herold 5, 13-17n-12w, 660 ft s and 660 f e of nw c of Sec.

CADDO PARISH—Gulf, Shreveport, Levee Board A-26, 34-21n-16w, 2440 ft s and 200 ft e of nw c of Sec.

CAMERON PARISH—J. G. Sutton Oil Co., Inc., Lake Charles, Francois Duhon 2, 22-12s-10w, 2221.4 ft w and 1945 ft n of se c of Sec.

DE SOTO PARISH—Bud Harrell, Fort Worth, Tex., Thos. Horton 1, 4-11n-11w, 450 ft e and 150 ft n of sw c of Sec. R. O. Roy, Shreveport, Parker Bros. B-1, 31-14n-13w, 660 ft n and 660 ft w of se c of Sec.

JEFFERSON DAVIS PARISH—Yount-Lee Oil Co., Beaumont, Tex., Abbott 1, 22-9s-5w, 1635 ft e and 1176 ft n of sw c of Sec.

MOREHOUSE PARISH — Industrial Gas Co., Shreveport, Fee 1, 3-20n-4e, 180 ft s and 660 ft w of ne c of Sec.

RICHLAND PARISH—Northern La. Nat. Gas Co., Shreveport, L. S. Mulhern 1, 28-16n-6e, 1320 ft s and 660 ft e of nw cor of sec. Southern Carbon Co., Monroe, L. S. Mulhern 1 (amended permit), 30-16n-6e, 660 ft s and 560 f w of ne c of nw¼. Southern Carbon Co., Monroe, F. B. & E. A. Sartor 4, 18-16n-6e, 1371 ft e and 4563 ft s of nw c of sec. United Carbon Co., Monroe, M. A. Cooper 1, 24-16n-6e, 679.1 ft w and 584.8 ft n of se c of sec.

SABINE PARISH—Bridges-Clark Oil Co., Pleasant Hill, H. A. Cook, Ld. Co. 1, 3-9n-12w, 150 ft s and 1120 ft e of nw c of sec. F. M. Hood, Tr., Shreveport, Winston 1, 31-8n-12w, 460 ft s and 290 ft e of nw c of sec. S. D. McDaniel & J. Lieber, Natchitoches, N. L. Batson 1, 16-8n-12w, 675 ft n and 318 ft e of sw c se se. Ohio Oil Co., Shreveport, Bowman-Hicks Acct. 2-1, 6-7n-13w, 275 ft n and 330 ft w of se c ne se. Dudney Olds & Smith, Magnolia, Ark., Mrs. Ida Reed Pearson 1, 31-8n-12w, 320 ft w and 379½ ft n of se c sw nw.

UNION PARISH — Sabine Prod. Co., Shreveport, Morgan 1, 11-20n-3e, 834 ft w and 88 ft s of ne cor of nw¼.

WEBSTER PARISH—Magnolia, Shreveport, N. Scroggins 3, 1-22n-11w, 165 ft w of se c sw nw.

Tabulation and Comparison on Page 42

KANSAS

BUTLER COUNTY—Liggett et al, Gunther 1, se ne nw, 29-26-7e.

ELLIS COUNTY—Mid West Exploration Co., Austin 13, se ne ne 36-12-16w.

GREENWOOD COUNTY—The Texas Co., Blanck 1, sw nw se, 29-22-13e. Parrish et al, Errickson 1, sw c, 15-24-13e.

McPHERSON COUNTY—W. C. McBride, Inc., Whitwright 1, ne c sw, 30-19-1w.

MORRIS COUNTY — Hankenson et al, Jones 1, sw c se, 24-16-9e.

RICE COUNTY—Tatlock et al, Loesch 1, sw nw se, 22-20-10w.

RUSSELL COUNTY—Imo Oil Co., Wadby 1, se nw ne, 7-14-14w. Day et al, Dortland 1, ne c 8-14-15w.

SALINE COUNTY—Twin Mound Oil Co., Weis 1, (owdd) nw c sw ne nw, 20-13-4w.

STAFFORD COUNTY — Boucher et al, Smith 1, ne c, 9-22-11w; Boucher et al, Christenson 1, nw c, 22-22-11w. Mid West Exploration Co., Richardson 36, se c, 36-22-12w.

STEVENS COUNTY — Argus Gas Co., Hicks 1, c se, 12-34-39w. Argus Gas Co., Sherman 1, c nw 33-33-37w. Argus Gas Co., Crawford 1, c ne 19-32-37w.

OKLAHOMA

CARTER COUNTY — Trevelyn Oil Co., Spigner 2, ne sw nw, 24-1s-3w. J. H. Hudson et al, Fulton 1, nw se sw, 28-4s-2w.

CADDO COUNTY — English Drilling Co., Abernathy 7, sw c ne se, 31-6-9w.

COMANCHE COUNTY—Voe Wright, Indian 1, se c sw, 29-2-9w.

CREEK COUNTY—J. B. Grieves, Dickerson 1, se ne nw, 4-19-8e. J. W. Merritt et al, Brown 3, se nw ne, 27-18-8e. H. L. Skelly and C. O. Buckles, Grayson 1, se c, 22-17-9e. Westland Oil Co., Walker 2, nw c sw nw, 22-17-9e. Shaffer, McKinney 1, nw c 33-17-8e. Transcontinental, Humphrey 1, sw c ne, 15-16-9e. Skelly Oil Co., Beaver 2, ne se se, 9-15-8e. Campbell et al, Kimbal 1, sw nw ne, 15-14-10e.

HUGHES COUNTY—Burke-Greis Oil Co., Oliphant 1 "B," nw sw se, 18-9-9e.

JEFFERSON COUNTY—Simpson and Fell, Seay 1, sw c nw ne ne, 2-7s-5w.

KAY COUNTY—Alco Royalty Co., Wolf 1, se sw se, 34-26-2w.

LINCOLN COUNTY—Blackwell O. & G., Estes 1, sw c se, 30-17-4e. Magnolia, Henry 1, sw ne ne, 17-14-4e.

LOGAN COUNTY—Sam Hall, Norris 1, sw c, 22-18-4w.

MARSHALL COUNTY — Oklahoma Bay Transit Co., Arbuckle 1, nw c se se se, 25-5s-5e. Poor Boy Oil Co., Null 1, nw c sw sw ne, 24-5s-5e. F. W. Merrick, Null 15, se c, ne nw nw, 24-5s-5e.

MUSKOGEE COUNTY—Hale and Reynolds, Sango 1, csl n2 sw nw 9-15-18e. J. L. Haney, Stidham 4, ne c nw sw sw, 9-15-18e. Kimsey and Simpson, Mackey 1, sw c se se sw, 9-15-18e.

NOBLE COUNTY — Weaver and Craigan, Frederick 1, c sw ne, 4-24-1w.

OKFUSKEE COUNTY—E. L. Robinson et al, Severs 5 "B," c nw se, 35-11-9e.

OKLAHOMA COUNTY—T. B. Slick et al, Townsend 1, se c nw, 1-11-3w. I. T. I. O. et al, Theimer 4, sw nw se, 1-11-3w. T. B. Slick et al, Foote 1, se se sw, s-11-3w. Marco Oil Corp., Holder 1, se se sw, 2-11-3w. Wright and Smith, Lot 1, nw nw ne, 2-11-3w. Cromwell-Franklin Oil Co. et al, Trosper Park 24, ne c sw, 12-11-3w. Julian Oil Royalty Co., 1, ne c nw, 14-11-3w. I. T. I. O. Co. et al, Peterson 2, se c sw, 25-11-3w. Coline Oil Co., Clauer 7, nw se se, 25-11-3w. Sinclair, Vencl 8, se ne se, 31-11-2w; School Land 6, se nw ne, 36-11-3w; School Land 7, ne se ne, 36-11-3w; School Land 8, nw c ne, 36-11-3w. I. T. I. O. Co. et al, School Land 1, ne c nw, 36-11-3w; Jones 12, nw sw nw, 31-11-2w; Ferndale 3, sw ne ne, 11-11-3w; Eacock 1, nw c ne, 11-11-3w; Coppinger 1, ne c nw, 11-11-3w. Coline Oil Co., Clauer 9, sw c se, 25-11-3w; Clauer 8, ne sw se, 25-11-3w.

OKMULGEE COUNTY—J. E. Wallace, Colbert 13, cel nw ne, 14-14-14e.

OSAGE COUNTY—I. T. I. O. Co., 427, cel se ne, 6-25-11e.

PAWNEE COUNTY—John Byrnes, Edminston 5, nw c ne sw sw, 30-21-9e. Manford Dev. Co., Fleming 2, se c, 15-20-9e.

PONTOTOC COUNTY—Benedum and Trees, Brewal 3, sw ne nw, 31-5-5e; Stafford 2, se sw nw, 31-5-5e; Lowery 1, ne nw se, 31-5-5e. Dixie Oil Co., Haynes 3, nw ne sw, 32-5-5e. Superior Oil Co., Mauldin 6, se sw nw, 32-5-5e; Mauldin 7, ne sw nw, 32-5-5e.

SEMINOLE COUNTY — Gypsy Oil Co., Payne 7, sw se ne 5-7-7e. Mid-Continent Pet. Corp., Smith 17, se sw ne 5-7-7e; Smith 18, sw c ne 5-7-7e. Sinclair, Phillips 11, nw ne se 5-7-7e. Champlin O&R et al, Sachemeche 6, se sw sw, 9-6-6e. McCulloch Oil Co. et al, Roberts 2, ne nw nw 16-6-6e. Harris et al, Chupco 1, ne c se, 20-6-6e. Twin State Oil Co., Charlie 2 "A," sw ne ne 20-6-6e.

STEPHENS COUNTY — Sykes & Fossett, Blake 1, nw c ne sw 16-1s-8w, (owdd). Pace et al, Watkins 3, sw nw se 21-2s-7w. W. H. Smith, Randle 1, se ne nw, 15-2s-6w; Randle 2, ne c nw 15-2s-6w.

TEXAS COUNTY—Argus Gas Co., Ralston 1, c sw 23-6n-14, E. C. M.

TULSA COUNTY—Cornett et al, Crosby 1, "B" ne c 18-17-13e.

WAGONER COUNTY — Utopia Oil Co., Jones 1a, ne c se se 35-18-18e. H. A. Davis, Roberts 4, nw c ne se se 8-15-15e. Hunter et al, Sier 2, c sw ne 1-18-15e.

TEXAS

Operator, Lease or Owner, Acreage, Well, Survey, Distance to Lease Lines or Well

ARCHER COUNTY—Barnsdall Oil Co., Tulsa, T. B. Wilson, 200, A-11, B. Howard sur, 1594 ft from e and 1071 ft from s line, Moran Co., Wichita Falls. J. M. Bloodworth, 150, A-6, M. Cartwright sur, 150 ft from n and 2035' ft from w line. Golding & Cochran, Wichita Falls, M. Phillips 37, 1, T. McCoy sur ,150 ft from n and w lines. Underwood Drilling Co., Wichita Falls, W. R. Farmer, 40, 1, B 57, J. J. Perkins sur, 150 ft from s and e lines. Fain-McGaha & Seitz, Comegys & Seitz, Wichita Falls, M. B. Ray, 25, 1, Club Ranch sur, 700 ft from n and 550 ft from w line Blk 2½. M. & V. Oil Co. & Mitchell & Fulton, Wichita Falls, H. O. Kunkel, 40, 5, G .W. Stell sur, 300 ft e of No. 4. Bridwell & Continental Oil Co., Wichita Falls, W. J. Logan, 220, 5, J. M. Taber sur, 561 ft from s and 150 ft from e line.

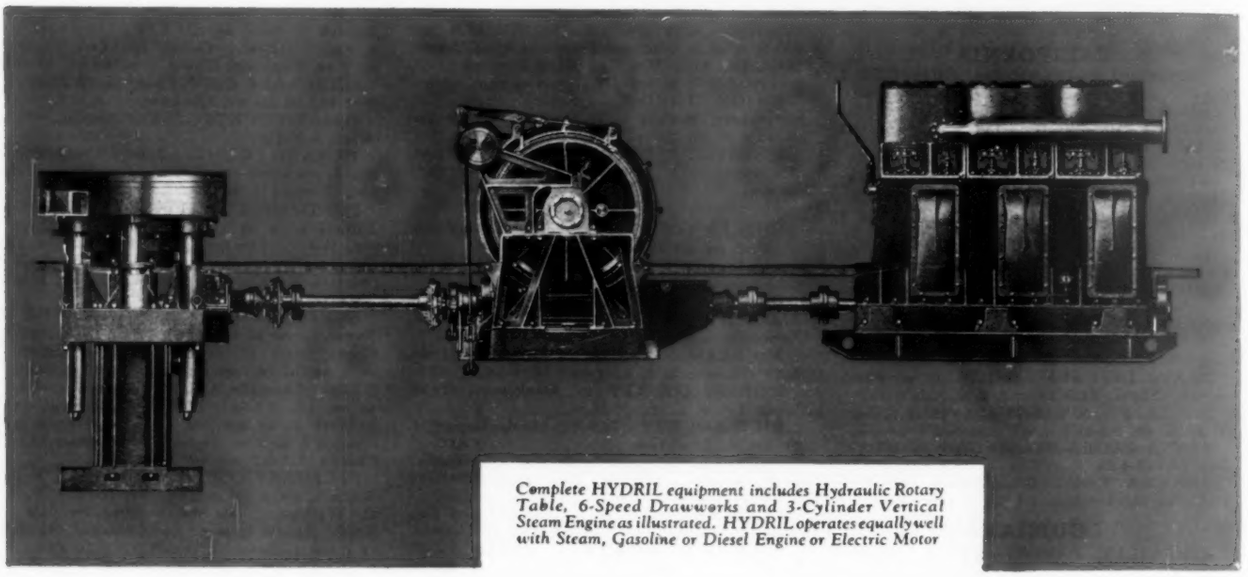
AUSTIN COUNTY—Humble, Houston, A. Diemer, 2, W. C. White sur, 650 ft from nw and 150 ft from ne line.

BROWN COUNTY—E. L. Smith Oil Co., Inc., Mexia, G. W. Carmichael, 80, 1, s 647 B 8, P. Magee sur, 700 ft from w and 150 ft from s line. Baker Bros., Brownwood, G. P. Hall, 120, 3, B 38, K.C.S.L sur, 300 ft e of No. 1.' G. W. Nickell, Brownwood, G. T. Butler, 50, 2, No. 798, J. McGloin sur, 150 ft from s and e lines. O. G. Windsor, Brownwood, W. McClatchey, 50, 1, No. 90, McKinney-Williams sur, 1169 ft from w and 150 ft from s line.

BRAZORIA COUNTY—United Oil Synd., R. H. Moers, 200, 1, F. Moore sur, 200 ft s of center of n line.

CALLAHAN COUNTY—W. Y. Powell, Moran, B. A. Morgan, 60, 1, s 125, Univ. Lands sur, 300 ft s and 600 ft e of No. 1. Shaheen & Ladd, Abilene, Harp, 40, 1, S. 16, D&D Asy. sur, 150 ft from s and w lines of nw ¼ of se ¼. Moutray Oil Co., Abilene, P. G.

HYDRIL



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ELIMINATES 140 feet of dangerous CHAINS!

AN INVESTIGATION covering numerous installations of five of the most widely used makes of rotary drilling equipment disclosed the fact that the average amount of chain required was 140 feet! Small wonder that the floor space is obstructed by clumsy chain guards; that grease is thrown over everyone and everything; that upkeep costs and depreciation are so high; that shutdowns are so frequent...and that compensation insurance rates for oil well workers are so high.

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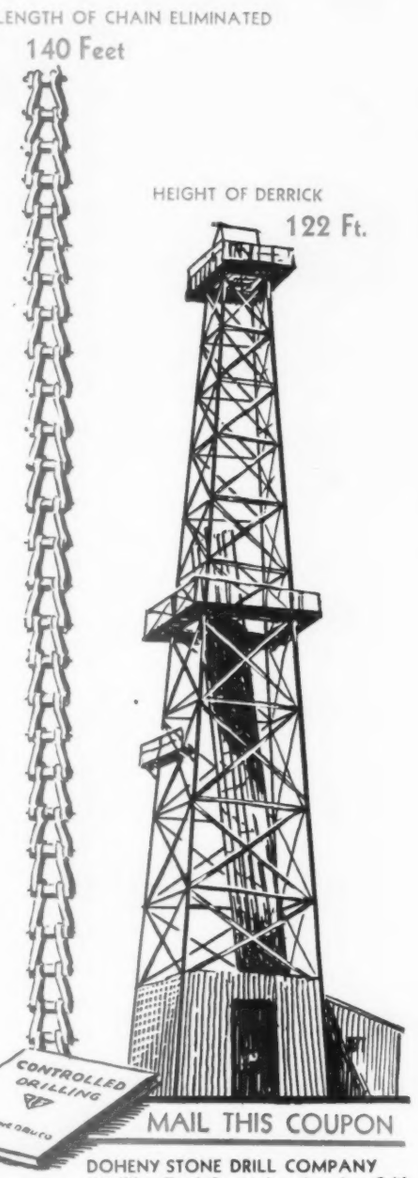

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Positive die retaining device, fully enclosed, instead of a piece of exposed spring steel which bends or breaks off in use, and is dangerous—hence dies can not fall out and become lost.

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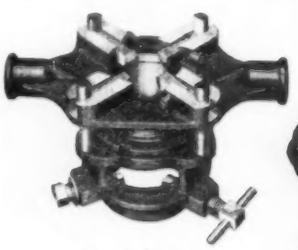

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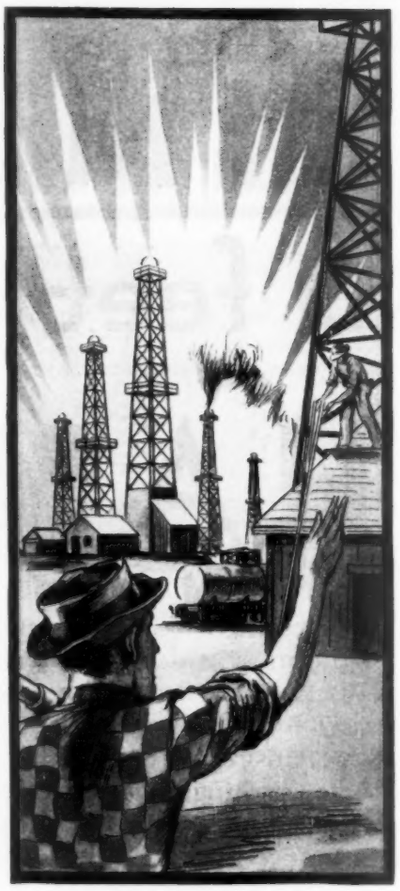

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CARSON COUNTY — Texas Inter-State Pipeline Co., Kansas City, Mo., Burnett, 480, 1, S 99, B 5, I&GN sur, center of nw¼.

CALDWELL COUNTY—Danciger O. & R. Co. & Buchanan, Fort Worth, Dale School sur, 4, 2, C. M. Cannon sur.

COOKE COUNTY—C. C. Lanier, Gainesville, C. E. Marshall, 160, 1, No. 259, J. Campbell sur, 1170 ft from n and w lines.

COLEMAN COUNTY—Andrew Urban, Abilene, J. Rogers, 150, 1, No. 337, W. H. King, 900 ft from e and 1280 ft from s line.

CONCHO COUNTY—Duffy & Watchorn, Eden, L. C. Noyes, 160, 2, S 19, B 70, H&TC sur, center of nw ¼.

COLLINGSWORTH COUNTY — Shoup Bros., Colorado Springs, Colo., J. C. Whitson, 480, 1, S 33, B 12, H&GN sur, 1050 ft from n and 2680 ft from e line se ¼.

DUVAL COUNTY—Bain & Shaw, Laredo, S. Benavides, 320, 1, S 173 sur, 180 ft. from n and 1950 ft from w line.

EASTLAND COUNTY—R. C. McCarter, et al, Rising Star, T. B. Buzbee, 120, 1, B 30, H. B. Brewster sur, 200 ft from w and 575 ft from s line. J. W. Amyx et al, Eastland, Connelle, 160, 1, Jos. Honurn sur, center. Geo. Christie, Rising Star, M. L. Clark, 160, 1, S 9, B 2, E. T. Ry sur, 150 ft from s and w lines se ¼ of ne ¼. Hoffman & Page Co., Eastland, S. N. Coon, 40, 3, S 27, B 2, H&TC sur, 150 ft from n and 770 ft from w line.

ECTOR COUNTY—Gulf Prod. Co., Fort Worth, State, A, 160, 2 S 2, B 35, Univ. sur, 660 ft s of No. 1. State, 160, 2, S 1, B 35, Univ. sur, 660 ft n of No 1 in se ¼. Humble, Cisco, A. Kloh, D, 840, 8, S 7, B 44, T&P sur, 664 ft n of No. 4. R. L. York, 640, 7, S 16, B 44, T&P sur, 440 ft from w and 1650 from s line sec.

GUADALUPE COUNTY—United North & South Dev. Co., San Antonio, T. Dix, 50 3, J. W. Robinson sur, 150 ft from n and e lines. Magnolia, Dallas, M. E. Roamel, 50, 2, J. W. Robinson sur, 300 ft sw of No. 1; 300 ft nw of No. 1. Humble, Houston, D. D. Baker, 60, 6, J. C. Darst sur, 150 ft from n and e lines.

GRAY COUNTY—Prairie O. & G. Co., Ranger, A. W. Leycomb, 1, S 36, B 3, I&GN sur, 330 ft from n and w lines of nw ¼; 2, 330 ft from n and e lines of nw ¼; 3, 330 ft from s and e lines of nw ¼. M. L. Langham, 2, S 1, B B-2, H&GN sur, 330 ft from n and w lines of sw ¼. Shamrock O. & G. Co., Amarillo, Lincoln, 80, 5, S 3, B 1, Ach &BB sur, 330 ft s of No. 1, w ½ of ne ¼. Gulf Prod. Co., Fort Worth, A .Combs, 160, 2, S 38, B 3, I&GN sur, 660 ft n of No. 1, se ¼. Reynolds Drilling Co., Pampa, Webb, 160, 1, S 60, B 25, H&GN sur, 330 ft from n and e lines of nw ¼. Humble, Wichita Falls, Combs, 80, 2 S 36, B 2, I&GN sur, 330 it from n and 240 ft from w line.

GLASSCOCK COUNTY—Lion O. & R. Co., El Dorado, Ark., R .C. Coffee, B 80, 1, S 22, B 23, T&P sur, 2310 ft from s and w lines of sec. Kirby Pet. Co., Houston, H. Phillips, 80, 3, S 23, B 33, T&P sur, 1320 ft s of No. 1.

HARRIS COUNTY—Texas Co., Houston, Landslide, 808, 271, R. Dunman sur, 532 ft from e and 50 ft from s line. P. G. Benedum, Wichita Falls, W. L. Foley, 100, 1, J. Ryan sur, 150 ft from n and 456 ft from w line. Humble, Houston, B. F. Williams, 12, W. W. Williams sur.

HARDIN COUNTY—Minor Oil Co., Beaumont, Fee, 40, 87, S. Jackson sur, 245 ft from w and 96 ft from s line. R. R. Speight, Hull, Z. A. Guedry, 50, 1, BBB&C, se corner.

HUTCHINSON COUNTY—Midwest Eplo. Co., Amarillo, Ware, B., 160, 1B, S 124, B 4, I&GN sur, 330 ft from n and 990 ft from w line nw¼. Pitcher, A., 160, 1, S 19, B M-21, T. C. Ry., sur, 330 ft from s and w lines of se¼. H. Stekoll, Tulsa, Okla., J. A. Whittenburg, 160, 3, S 89, B Z, H&TC sur, se cor of nw¼ of ne¼.

HOPKINS COUNTY—Atlantic, Dallas, S. M. Milholland, 54, 1, J. H. Simpson sur, 1270 ft from n and 330 ft from e line.

HOWARD COUNTY—Continental Oil Co., Wichita Falls, H. R. Clay, 160, E-4, S 138, B 29, W&NW sur, 330 ft from n and w lines of ne¼.

JEFFERSON COUNTY — Yount-Lee Oil Co., Beaumont, McFaddin, 129, P. Humphreys sur, 595 ft from e and 1650 from s line.

LIBERTY COUNTY — Humble, Houston, Sabine Tram Co., 1, M. Whittington sur, 900 ft from ne and 1200 ft from se line. Sun Oil Co., Dallas, A. Mitchell, 100, 40, M. G. White sur, 150 ft n of No. 38. V. H. Borsodi, Houston, Gulf Prod., 10, 2, S 125, B 3, H&TC sur, 600 ft from n and 82 ft from e line.

LUBBOCK COUNTY — Groat, Miller & Prewitt, Lubbock , I. H. Neff, 680 1, J. H. Robertson sur, 2050 ft from n and 2440 ft from e line.

MEDINA COUNTY—Pearson Oil Co., Suburban Farms, 5, lot 3-A sur, 100 ft ne of No. 4.

MONTAGUE COUNTY—Barnsdall Oil Co., Tulsa, Okla., L. B. Norton, 18, 5, J. B. Norton sur, 150 ft from n and 1050 ft from e line. Bridwell Oil Co., Wichita Falls, J. S. Dennis, 353, 3, E. Robertson sur, 4560 ft s and 2950 ft from w line sur.

NAVARRO COUNTY—W. M. Young, Corsicana, T. R. Carl, 22, 2 W. Powell sur, 300 ft e of No. 1.

NUECES COUNTY — South Texas Prod. Co. & Agua Dulce O. & G. Co., Agua Dulce, J. A. Dauderman, 160, 1, S 32, Benton sur, 450 ft from n and e lines of Blk 13. Houston Oil Co., Houston, R. E. Brooks, 1, S 28, B 13, Benton sur, 330 ft from n and e lines of Blk 13.

PECOS COUNTY — Continental Oil Co., Wichita Falls, I. G. Yates, 320, S-45, S 60, B 1, I&GN sur, 2226 ft from w and 521 ft from s line e½. Walsh, Sturm & Keller, Grand Falls, W. T. Shearer, 640, 1, S 89, B 10, H&GN sur, 330 ft from n and w lines of e½. Gulf Prod. Co., Fort Worth, M. A. Smith, 640, 24, S 22, B 194, GC&SF sur, 1810 ft from e and 2650 ft from S line sec.

PALO PINTO COUNTY—Brazos River Gas Co., Wichita Falls, W. T. McAvoy, 255, 1, J. F. Smith sur, 600 ft from s and w lines. Texas Pacific Coal & Oil Co., Thurber, J. N. Stuart, 640, 166, S 71, B 4, T&P sur, 680 ft from n and 2190 ft from e line.

REFUGIO COUNTY—Independent O. & G. Co., Refugio, M. F. Lambert, 860 ,1, D. Fox sur, 330 ft from w and 2506 ft from s line; C. Heard, 24, 5, Lot 5, Refugio sur, 150 ft from e and 250 ft from s line; C. Heard, 4, 678 ft from w and 250 ft from s line. Houston Oil Co., Houston, J. W. Kay, 7, 1, Lot 5, Refugio sur, 150 ft from s and w lines. Morgan Oil Corp., Houston, Carlisle, 2½ ,1, Blk 2, Refugio sur, 150 ft from n and e lines of Blk 2; T. H. Heard, 2½, 1, Refugio sur, 150 ft from n and e lines of Blk 3; City, 32, 5, Refugio, Blk 3, 150 ft from n and e lines; F. B. Rooke, 114, 1, Refugio sur, 150 ft from n and w lines; J. F. Powers, 240, 1, Refugio sur, 150 ft from n and e lines; Moody-Seagraves Prod. Co., Houston, City, 32, 7, Refugio sur, 250 ft from n and 750 ft from e line Blk 3; 6, 250 ft from n and e lines.

RAINS COUNTY—D. H. Byrd, J. D. Hill, 150, 1, F. McMahon, 150 ft from n and 850 ft from e line.

SHACKLEFORD COUNTY—A. D. Robinson, Dallas, C. Blach, 320, 21, 372 TE&L sur, 50 ft sw of No. 20. J. L. Story, Jr., Wichita Falls, R. E. Collinsworth, 40, 1, s 13, Univ Lands sur, 1179 ft from n and 450 ft from e line. W. F. Ramming, Wichita Falls, J. P. Clarke, 40, 2, s 3, Blind Asy. sur, 363 ft n of No. 1.

SAN AUGUSTINE COUNTY — M. C. Piekul, Houston, D. C. Stanley, 77, 1, P. A. Sublett sur, 150 ft from n and w lines.

THROCKMORTON COUNTY—Ewmo Oil Corp., Abilene, N. L. B. Davis, 40, 4-B, 901, TE&L sur, 300 ft s of No. 2; 3B, 300 ft e of No. 2. Decatur Oil Co., Wichita Falls, J. T. Odell, A, 40, 12, 696, TE&L sur, 150 ft w of center of e line; 13, 322 ft so of No. 12; 14, 322 ft s of No. 13.

VAN ZANDT COUNTY — Pure Oil Co., Fort Worth, E. L. Fowler, 35, 2, Jno Walling sur, 200 ft from w and 250 ft from s line; C. H. Cannon, 4, 1, Jno Walling; J. T. Thompson, 3, M. Gross; C. B. Tunnell 1, M. Gross;2 ; N. E. Clark, 1, M. Gross.

VICTORIA COUNTY—Lion O. & R. Co., San Antonio, J. A. McFaddin, 1, M. J. Traviesa sur, 514 ft n of center of s line; J. A. McFaddin, 1, C. O. Edwards sur, 514 ft n of center of s line.

WICHITA COUNTY—John O'Neil, Wichita Falls, Fee, 83, 2, S 32, B 5, H&TC sur, 1940 ft from e and 495 ft from s line. J. T. Lobban et al, Electra, J. L. Powell, 40, 1, S 21, H&GN sur, 1365 ft from n and 150 ft from e line; 2, 300 ft s of No. 1. G. H. Howell, Wichita Falls, Foster-Allen, 160, 2, No. 1, HT&B sur, 750 ft from n and w lines. Humble Oil & Refg. Co., Wichita Falls, Taylor, 110, 8, B 81, W.F.F.L. sur, 303 ft s of No. 4. W. H. Hammon, Wichita Falls, T. F Mitchell, A, 40, 12, J T. Lewis sur, 300 ft s of No. 10. Texas Co., Wichita Falls, W. T. Waggoner, A-377, S 3, GC&SF sur, 330 ft from e and 200 ft from s line sec; A-378, 990 ft from e and 200 ft from s line sec.

WOOD COUNTY—Texas Co., Houston, A. Sessions, 98, 1, R. E. Neill sur, 150 ft from s and e lines.

WILBARGER COUNTY—Fain-McGaha Oil Corp., Wichita Falls, W. T. Waggoner, L, 200, 19, S 31, B 4, H&TC sur, 1075 ft from n and 1055 ft from e line; W. T. Waggoner, 100, 25, B 4, S 32, H&TC sur, 975 ft from w and 490 ft from n line; W. T. Waggoner, L, 200, 18, S 31, B 4, H&TC sur, 400 ft w of No. 16. Zenith Oil Prod. Co., Vernon, N. J. George, 10, 3, S 29, J. Poitevent sur, 300 ft sw of No. 2; 2, 300 ft sw of No. 1; S. A. Dill, 100, 3, S 82, B 14, H&TC sur, 300 ft sw of No. 2.

WEBB COUNTY—Claggett & Evans, Laredo, C. W. Webster, 60, 1, S 684, 990 ft from w and 750 ft from s line sw¼ of sw¼.

WALKER COUNTY — Joyce Richardson, Brenham, Smither, 160, 1, S. Manning sur, 800 ft from river and 3617 ft e of w line of Sec.

WHEELER COUNTY — Dunaway Bros., Pampa, J. A. Clarke, 30, 1, S 39, B 24, H&GN sur, 330 ft from n and e lines of nw¼. Northern Texas Utilities Co., Wichita Falls, R. L. George, 20, 1, S 74, B 17, H&GN sur, 330 ft from w and 660 ft from s line. Fain-McGaha Oil Corp., Wichita Falls, E. Perry, 160, 1, S 78, B 23, H&GN sur, 690 ft from s and 675 ft from e line ne¼; 1. Close, 10, S 80, B 23, H&GN sur, 660 ft from s and w lines of se¼.

YOUNG COUNTY—Petroleum Prod. Co., Wichita Falls, O. Dietrich, 60, 5, G. W. Stell sur, 300 ft w of No. 4. McDonald & Campbell ,Dallas. J. D. Carpenter, 40, 1, 164, TE&L sur, 183 ft from n and 150 ft from w line n½ sw¼. Panhandle Refg. Co., Wichita Falls, H. O. Prideaux, 105, C-19, A. Rohus sur, 300 ft n of No. 18. Atlantic Oil Prod. Co., Dallas, J. E. Keen, 106, B1, 3401, TE&L sur, 150 ft from n and 1560 ft from e line.

Bridwell & Petroleum Prod. Co., Wichita Falls, J. B. Danies, 40, 1, 164, TE&L sur, 1083 ft from s and 1221 ft from e line Sec. R. W. Dilday, Wichita Falls, H. Hennig, 47, 1, 410, TE&L sur, 150 ft from n and w lines. Charida & Hartness, Loving, W. H. Charida, 26, 1, L. E. Hardin sur, 150 ft from n and w lines. Riggs, Brazleton Bros. & Williams, Graham, O. Andrews, 120, 1, 150, TE&L sur, 300 ft from w and 570 ft from n line. Hickey & McGee, Cisco, M. A. Hall, 60, 2, 167, TE&L sur, 150 ft from e and 750 ft from s line. J. R. Fowler, Olney, E. Hill, 17, 2B, 195 TE&L sur, 450 ft from e and 150 ft from s line; 3B, 750 ft from e and 150 ft from s line; 4B, 200 ft from w and 150 ft from s line. Wood Drilling Co., Wichita Falls, E. C. Keith, 80, 1, 267, TE&L sur, 750 ft from n and w lines of Sec. Howard Pet. Co., Tulsa, Okla., J. D. Lowe, 80, 1, 250, TE&L sur, 775 ft from n and 150 ft from w line sw¼. W. R. Brazleton et al, Jean, C. J. Taack, 40, 3, 263, TE&L sur, 450 ft from n and 150 ft from w line. Butler & Perkins, Olney, B. W. Whitt, 30, 4, 160, TE&L sur, 150 ft from w and 450 ft from n line. McDonald & Campbell, Dallas, J. D. Carpenter, 40, 4, 164, TE&L sur, 483 ft from n and 150 ft from w line n½ sw¼. E. N. Hamilton, Wichita Falls, R. J. Johnson, 80, 1, 733, TE&L sur, 1200 ft from n and 900 ft from e line. G. A. Alexander, Jr., Wichita Falls, S. R. Jeffery, 40, 1, S 41, E. T .Ry. sur, 150 ft from s and w lines. E. B. Madden, Olney, J. O. Winkler, 20, 1, I. Holman sur, 842 ft from n and 2367 ft from e line Sec. Wo Mac Oil Co., Wichita Falls, Stevens, 110, 6, S 1, BBB&C sur, 150 ft from e and 1480 ft from s line; 4, 318 ft w of No. 1. Perkins & Cullum, Wichita Falls, G. R. Lemmond, 110, 7, S 1, BBB&C sur, 300 ft n of No. 6. McDonald & Carpenter, Dallas, J. D. Carpenter, 40, 3, 164, TE&L sur, 150 ft from n and e lines of sw¼. Cunningham & Lynch, Graham, Kisinger, 40, 4, Jno. Connor sur, 300 ft e of No. 2. W. R.

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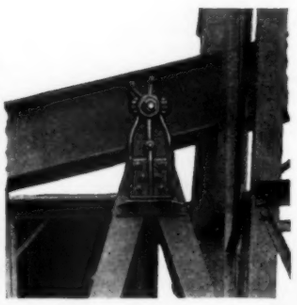

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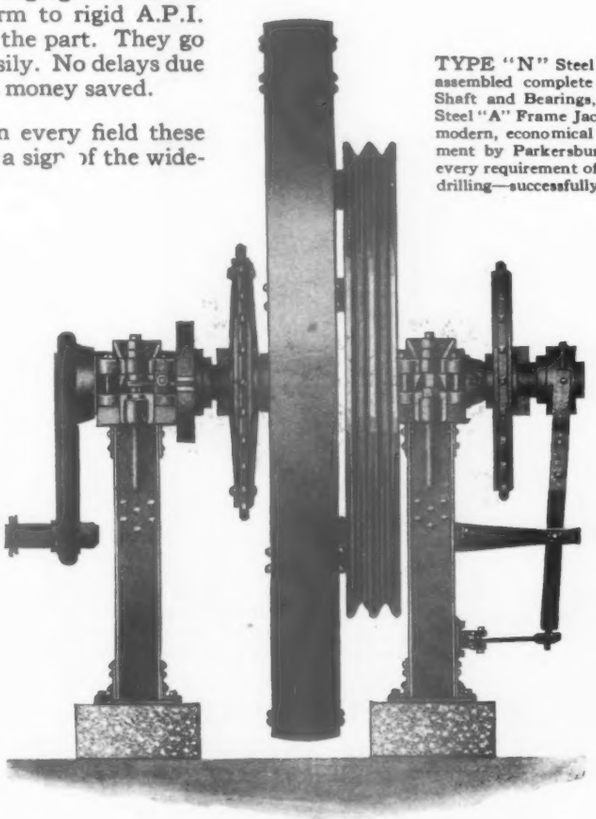

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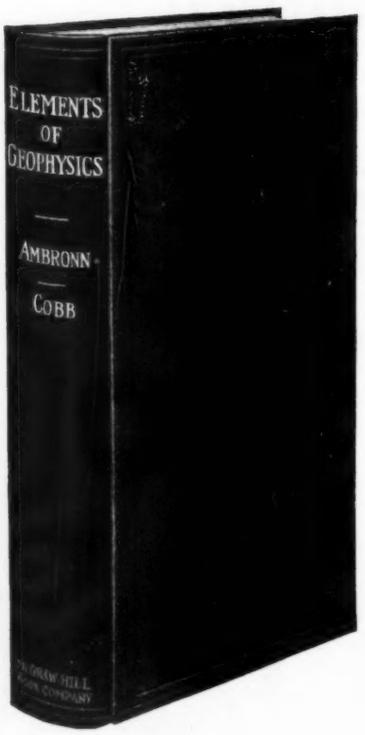

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Stafford, Graham, Baldwin, 75, 1, 294, TE&L sur, 150 ft from s and e lines of sw¼. Benson Bros., Bowie, Jeffery, 80, 1, 52, TE&L sur, 1725 ft from e and 150 ft from s line Sec. Gorsuch Oil Co., Abilene, O. W. Matthews, 80, 6, A. Ronus sur, 300 ft w of No. 5, L. V. Woods, Olney, M. B. McKinney, 50, 1, 341 TE&L sur, 150 ft from s and e lines of Sec. Bonner Co., Wichita Falls, J. W. Davis, 100, 7, 1395, TE&L sur, 300 ft e of No. 6.

T. G. Shaw Oil Corp. ,Fort Worth, J. Kisninger ,40, 3, Jno. Connor sur, 350 ft s of No. 2. Cooper-Brazleton et al, Olney, A. W. Hardy, 40 ,1, 251, TE&L sur, 750 ft from s and 150 ft from e line. G. E. Vandiver, Moran, R. S. Todd, 80, 1, 1566, TE&L sur, 150 ft from n and 653 ft from w line.

ZAPATA COUNTY—Killiam & Dugan, Laredo, R. Cuellar, 640, 14, No. 277 sur, 450 ft from w and 200 ft from s line Sec. O. W. Killam, Laredo, R. Cuellar, 80, 17, J. M. Pereda, 698 ft from sw and 313 from se line. South Texas Prod. Co., Laredo, J. D. Jennings, 9, C. Blanco sur, 1500 ft nw of No. 6; Jennings, 3, Mira Flores sur, 12,800 ft from nw and 9600 ft from sw line.

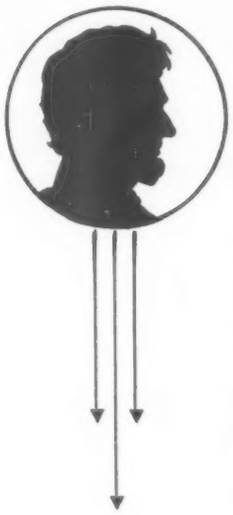
Pacific Coast Communities Have Natural Gas

Every community of the Pacific Coast not otherwise served by manufactured or natural gas will be offered gas service for domestic and industrial purposes by Natural Gas Corporation of California, Natural Gas Corporation of Oregon and Natural Gas Corporation of Washington, subsidiaries of the Pacific Public Service Company, itself a subsidiary of Standard Oil Company of California. These three companies were recently acquired by Pacific Public Service Corporation from Thebo, Starr & Anderton, an engineering firm which organized them, and which will be in charge of the engineering and construction work of all the companies, also retaining a minority interest in all companies.

The program employs a new principle in the distribution of natural gas and permits service to be given to large or small communities without the construction of costly transmission lines, by the use of liquefied natural gas shipped in tank cars or tank trucks to the various communities, there to be subjected to a carburetion process at a local plant and delivered through an ordinary gas distribution system such as is employed in San Francisco and Oakland. The low cost of liquefying natural gas, and the small investment in local carburetion systems, make it possible to serve small communities profitably, which have heretofore been denied gas service; and at the same time this plan furnishes an additional outlet for natural gas from the great reservoirs of Kettleman Hills, presently supplying the San Francisco Bay area and other principal communities of Central California.

According to plans, as a chain of local units is built up ultimate business may warrant linking together separate communities with pipe lines bringing the product direct from the fields.

Thebo, Starr & Anderton, Incorporated, the engineering firm concerned, in addition to its work in this country, is acting as consulting engineers to public utility corporations in Japan, and maintains an engineering staff in Tokyo, Japan. It is also acting as engineers of design and construction on government utility developments in Central and South America.



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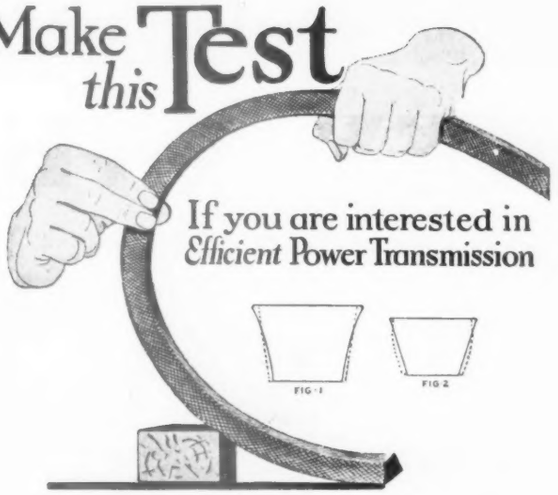

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As the belt bends, your finger and thumb will feel the concave sides **straighten out**—exactly as illustrated by the dotted lines in figure 1.

Now, try the same test with the ordinary, straight-sided belt. As this belt bends, the straight sides are forced to bulge outward and the belt assumes, in the sheave groove, the shape indicated by the dotted lines in figure 2. This bulging against the sheave groove walls naturally produces uneven wear along the sides of the belt. And because the contact is not extended evenly across the entire side of the belt, there is only a partial grip on the pulley and the consequence is a definite loss in transmission efficiency.

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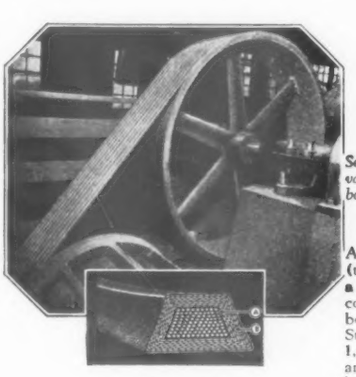

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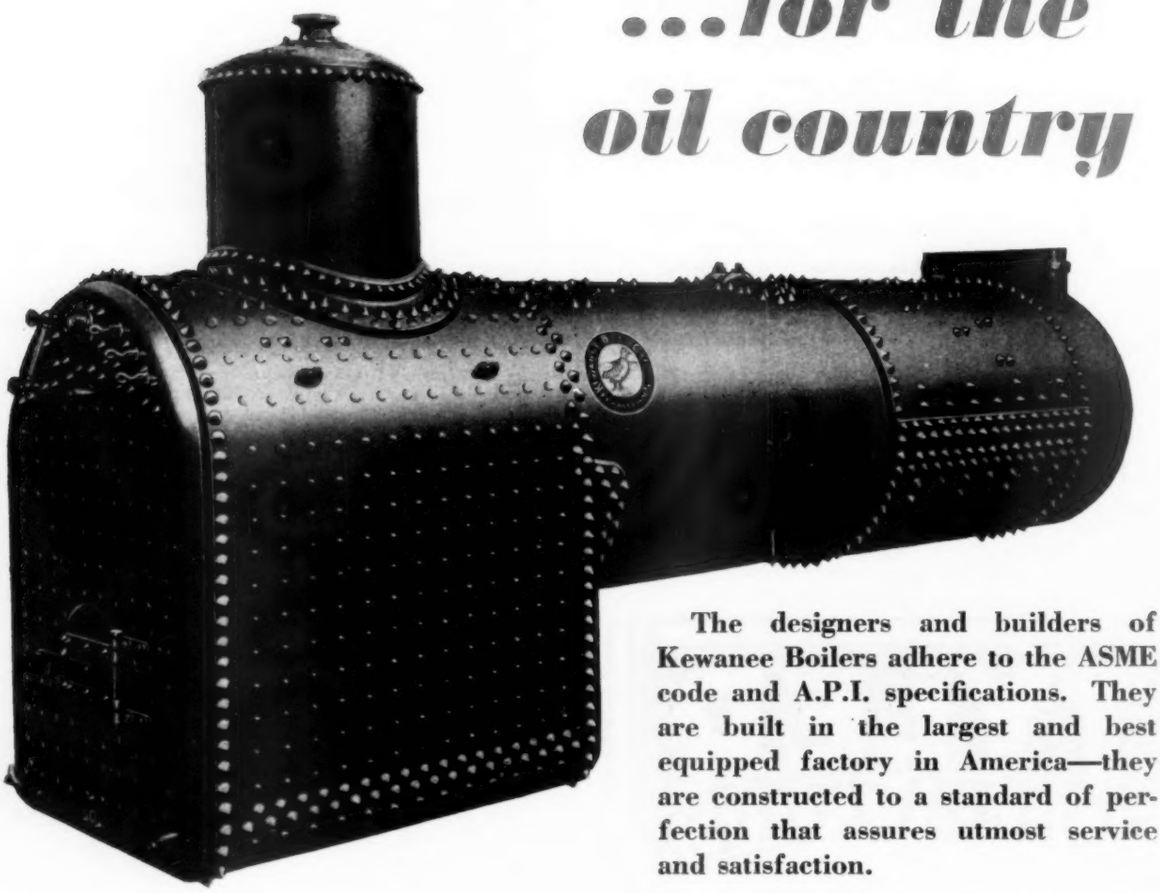

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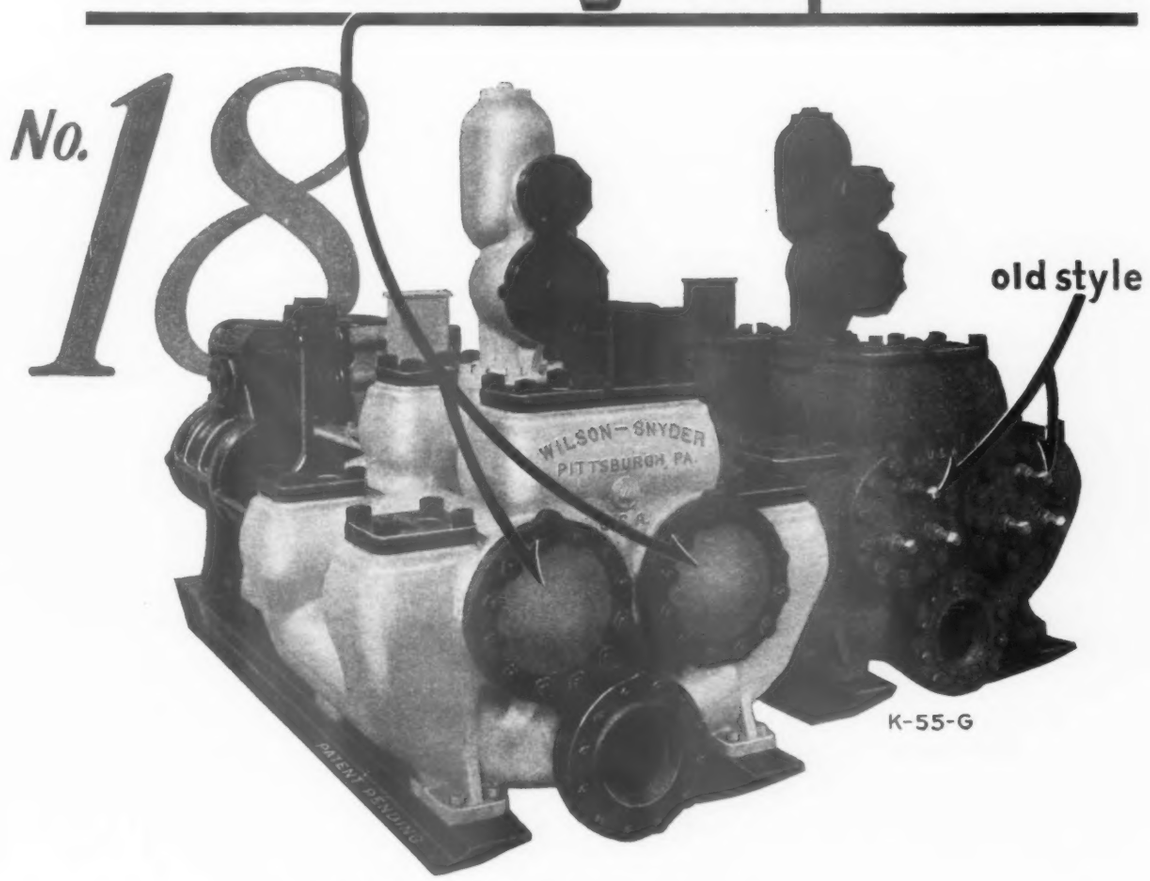

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WILDCATS FROM ALL SECTIONS

WEST TEXAS

Company, Well and Location	Initial Production Bbls.	Depth
MITCHELL COUNTY—		
Texas & Wheeler, Radford 1	*	5002
PECOS COUNTY—		
Angelo Petroleum, Inc., McKenzie 1	*	2200
WARD COUNTY—		
Southern Crude Oil Pur. Co., Hill & Hill 1	*	2970
WINKLER COUNTY—		
Sun Oil Co., Sealy 2	*	3288

ANDREWS COUNTY—Deep Rock Oil Co. et al's A. R. King 1, top salt 1698 ft, dr 2495 ft; B. L. King 1, dr 1485 ft; W. J. Mathis 1, set cas 1412 ft. Fuhrman Pet. Corp.'s Ford 1, dr 1140 ft. Humble & Penn Oil Co.'s Wilson 1, rig.

BORDEN COUNTY—Phillips Pet. Co. & C. B. Shaffer's Good 1, top salt 1400 ft, dr 2460 ft.

BREWSTER COUNTY—E. L. Chapman et al's Skinner 2, elev 4240 ft, sd hfw 1250 ft. Trans-Pecos O&G Co.'s Jones 1, elev 3073 ft, sd black shale 2140 ft.

COCHRAN COUNTY—Roy Westbrook & Co.'s Slaughter 1, elev 3793 ft, top salt 2347 ft, top lime 3837 ft, co 5036 ft.

COKE COUNTY—Arkansas Fuel Oil Co. & Dixie Oil Co.'s Stepp 1, sp and sd.

CONCHO COUNTY—Jas. Duffy & Watchorn O&G Co.'s Noyes 1, elev 1965 ft, dr 540 ft.

CRANE COUNTY—Cranfill Bros. Oil Co.'s Tubb 1, top salt 505 ft, dr 525 ft.

CROCKETT COUNTY — California Co.'s Shannon 2, elev 2667 ft, top salt 1025 ft, dr 1275 ft. W. E. Doleman & E. H. Moore's P. Perner 1, rig. Magnolia's Hoover 1, elev 2412 ft, top salt 660 ft, top lime 1890 ft, dr 2680 ft. Trans-Texas Oil Co.'s Shannon 2, dr 340 ft.

CULBERSON COUNTY—Grisham-Hunter Corp.'s W. D. Garren 1, dr 500 ft; Seay 3, elev 3634 ft, top salt 2730 ft, top Delaware 2934 ft, sd 3509 ft. Hickey et al's Finley 1, dr 2900 ft. W. L. Kornrumpf et al's Garren 1, sp and sd.

ECTOR COUNTY — Amerada & Skelly's University 1-B, rig. Cosden Oil Co.'s Kloh 1, top salt 1275 ft, dr 3015 ft; Kloh 2, lcn; University 2-A, top salt 1045 ft, dr 2100 ft; University 2-B, skid rig. C. P. Davis et al's Hendrick 1, dr 1340 ft. Gibson & Johnson's Scharbauer 1, elev 2986 ft, top salt 1220 ft, dr 2110 ft. Gulf Prod. Co.'s Kloh 1-G, dr 2130 ft; University 1, elev 2899 ft, top salt 925 ft, dr 3410 ft; University 2, dr 330 ft; University 1-A, elev 2884 ft, top salt 1175 ft, dr 3435 ft; University 2-A, dr 200 ft. Humble-Penn & Atlantic's Kloh 3-D, elev 2916 ft, top salt 1055 ft, dr 3480 ft; Kloh 4-D, elev 2905 ft, top salt 1060 ft, cem cas 3330 ft; Kloh 5-D, top salt 1060 ft, dr 2420 ft; Kloh 6-D, top salt 1075 ft, dr 2940 ft; Kloh 7-D, rig; R. L. York 4, elev 2903 ft, top salt 1175 ft, dr 2470 ft; York 5, elev 2892 ft, top salt 1105 ft, dr 3300 ft; York 6, elev 2889 ft, top salt 1155 ft, cem cas 3320 ft; York 7, rig. Independent O&G Co. & Tidal Oil Co.'s Eidson 1, elev 2929 ft, top salt 1020 ft, dr 1630 ft. Landreth Prod. Corp.'s University 2-S, elev 2897 ft, top salt 1210 ft, flowing 1450 bbls oil 3570-3667 ft. Penn Oil Co. & Devonian Oil Co.'s Goodman 1, lcn. Shell Pet. Corp.'s E. J. Jones 1, top salt 1070 ft, cem cas 2540 ft. Simms Oil Co. & Phillips Pet. Co.'s University 1, top salt 1070 ft, dr 2820 ft; University 2, lcn. Skelly & Republic Prod. Co.'s McKenzie 1, lcn. Skelly & Amerada's University 1-A, top salt 1060 ft, dr 3145 ft; University 2, dr 850 ft. Texas Co. & Cosden's Connell 7, rig. TP Coal & Oil Co.'s McKenzie 1, dr 830 ft. H. F. Wurtz et al's E. A. Ibbetson 1, sp and sd.

EDWARDS COUNTY—Phillips Pet. Co.'s Holman 2, dr 680 ft.

FISHER COUNTY—Cranfill-Reynolds Co.'s Johnson 1, elev 1843 ft, dr 2540 ft; Willingham 2, dr 910 ft.

GAINES COUNTY — Humble O&R Co.'s Carswell 1, rig.

GLASSCOCK COUNTY—California Co.'s J. W. Baker 1, elev 2634 ft, cem cas 2150 ft; Jones 1, rig. Continental Oil Co.'s Miller 1, fsh 1500 ft. FHE Oil Co.'s Cox 1, dr 2340 ft. Ed. Timberlake et al's Meek 1, elev 2792 ft, dr 2510 ft. World Oil Co.'s McDowell 3-C, rig.

TOM GREEN COUNTY—Cosden Oil Co.'s Anson 1, rig. Phillips Pet. Co. & Sun Oil Co.'s B. F. Jennings-Gulden 1, dr 715 ft. D. W. Wiley et al's Ed. Mayer 1, ur 620 ft.

HOWARD COUNTY—Meriwether Oil Co.'s Smith 1, elev 2590 ft, dr 2370 ft. Sinclair O&G Co.'s Montgomery 1, dk.

HUDSPETH COUNTY — California Co.'s University 1, elev 5109 ft, dr 4151 ft.

IRION COUNTY—Brown & Fox's Tankersley 2, co after pb from 1500 ft for shot. Cromwell et al's Nutt 2, fsh 1135 ft. Kingwood Oil Co.'s Sugg 1, elev 2334 ft, sd after 4 shots, td 7818 ft. Straughn & Texannati Oil Co.'s Nutt 1, sp and sd. P. H. Williams et al's Ashe 1, elev 2726 ft, top lime 1712 ft, dr 8360 ft.

JONES COUNTY—Adkinson & Sandefer's Byron 1, pull cas 2572 ft. Mid-Tex O&G Co.'s King 1, testing oil production 1961-64 ft, td 1965 ft. Phillips Pet. Co.'s Coates 1, flowing oil by heads 2526 ft.

LOVING COUNTY—California Co.'s Allen 1, elev 2730 ft, top salt 771 ft, dr 2180 ft; Reagan 1, elev 2725 ft, top salt 771 ft, dr 1085 ft. Hadlock et al's Russell 2-A, rig. L. E. Lockhart et al's Wheat-Ramsey 1, cem cas 703 ft. Lockhart & Co.'s Bowen-Wells 3, elev 2719 ft, top salt 763 ft, dr 2265 ft; Hubbard 5, elev 2695 ft, dr 3010 ft; Lepp 2, sp and sd; Wheat 1-H, sd hfw 5078 ft.

MENARD COUNTY—Cromwell & Jas. Duffy's Winslow 2, elev 2143 ft, dr 2965 ft. L. G. Priest et al's J. P. Sorells 1, set cas 1585 ft.

MIDLAND COUNTY—Pure Oil Co.'s J. E. Hutt 1, changing to rotary, td 580 ft.

ABBREVIATIONS

NOTE—The following is the explanation of abbreviations, signs, etc., used in completion and wildcat reports: *—dry hole, abandoned well; ‡—salt water; †—junked and abandoned; ¶—million feet or gas; abn—abandoned; bbls—barrels; b.s.—basic sediment; cas casing; co—cleaning out; dk—derrick; dr—drilling; fsh—fishing; ft—feet; in.—inches; lcn—location; m—milling; n, s, e, w—north, south, east, west; r—reaming; sd—shut down; sdtr—sidetracking; sp—spudding; sr—straight reaming; std—standardizing; sw—salt water; td—total depth; ur—underreaming; wo—workover; wosr—waiting on standard rig.

Ask Congress to Extend Oil Litigation Fund

Washington, D. C.—Further extension of the funds given President Hoover by congress to complete certain phases of the litigation to cancel the various oil leases and contracts which have been the subject of suit by the government, has been asked of the House of Representatives by President Hoover.

An appropriation of $100,000 was made for this work in 1924 and an additional $90,000 was appropriated in 1928. Certain phases of the oil litigation, it is explained, cannot be completed prior to June 30, 1930, and there will be additional expenses to be met after that date. Congress is asked, therefore, to extend the availability of the unexpended balance of the existing appropriation until June 30, 1931. The amount which will be unexpended at the end of the present fiscal year is not stated.

MITCHELL COUNTY—Gibson & Johnson's Scott 3, sd 1350 ft.

PECOS COUNTY—M. H. Black & Dittman Drlg. Co.'s Pecos Valley 2, sp. California Co.'s Iowa-Jasper 1, sp. E. L. Chapman et al's Streety 1, elev 2653 ft, dr 2035 ft. Continental Oil Co.'s Bennett-Robinson 1, dr 435 ft. Cromwell-Tanner & Ellis' University 1, sd 540 ft. Crosby Prod. & Roy. Co.'s Cordova 1, elev 2320 ft, top salt 725 ft, set cas to test show oil, td 1950 ft. Fisher & Lowrie's Webb 1, machine. Galt-Brown Co.'s Thompson 1, elev 2325 ft, top salt 730 ft, dr 1350 ft. Hayes et al's Lea 1, lcn. Hussman Oil Co.'s Estes 1, ur 1675 ft. Independent O&G Co. & Buell-Hagan's Jasper 1, dr 560 ft. C. S. Messinger et al's Byrne 1, dr 220 ft. J. R. Miller et al's Bennett 1, sp and sd. R. E. Moore et al's Arnold 1, elev 3860 ft, dr hfw 1930 ft. Perren et al's Eaton 2, sd 300 ft. Phillips Pet. Co.'s Shearer 1, dr 450 ft. R. W. Porpus et al's State 1, lcn. Rector Oil Co.'s Young 1, elev 2380 ft, top salt 635 ft, dr 1045 ft. Sides & Cloyd's Blackstone-Slaughter 1, top salt 860 ft, sd 1020 ft. Southern Crude's Eaton 1, fsh 900 ft. Texas Co.'s T. H. Wright 1, dr 1285 ft. Trees Oil Co.'s Trees 3, elev 2518 ft, fsh 1922 ft. Transcontinental's University 1, elev 2552 ft, top lime 1035 ft, bad hole 4910 ft. Transcontinental & Arkansas Fuel's White-Baker 2, elev 2695 ft, top salt 875 ft, top lime 1715 ft, cem cas 1752 ft; White-Baker 3, machine; M. Sellman 1-A, lcn; Tippett 1, lcn. W. F. Walsh et al's Scharbauer 1, dr 335 ft. Walsh-Sturm & Keller's Shearer 1, machine.

REAGAN COUNTY—Kemrow Co.'s Sawyer 1, rig. Big Lake Oil Co.'s University 179, (deep test), co 2787 ft; University 1-C, testing production in lime and calsite 8573 ft; University 2-C, flow 637 bbls 56 gravity oil and 12,634,000 ft gas 8232 ft; University 3-C, dr shale 8565 ft; University 4-C, flow 134 bbls 58 gravity oil and 5,197,000 ft gas 8220 ft. Group One Oil Corp. & Conoco's University 2-B, dr shale 7662 ft; University 3-B, dr shale 5660 ft. A. M. Hagan-Emch & Amerada's Sawyer 1, dr 680 ft.

REEVES COUNTY—Slack & Fink's Brooks-Huling 1, elev 3116 ft, sd 1827 ft.

RUNNELS COUNTY—Geo. W. Boyce & Lamar's Lange 1, elev 1844 ft, sd 2504 ft. Gibson & Johnson's Johnson 1, set 10-in cas 1735 ft.

SCHLEICHER COUNTY—Delmar Oil Co.'s O'Harrow 1, dr 2770 ft. Phillips Pet. Co.'s J. A. Whitten 1, elev 2333 ft, fsh 6100 ft. Munger-Wilson Oil Co.'s Page 1, elev 2270 ft, dr 3655 ft. Paul Teas & Walter Gant's G. C. Allison 1, rig.

SCURRY COUNTY—J. G. Armand & Camp Springs O&R Co.'s Quinn 1-A, elev 2316 ft, ur 4140 ft. Byrd & Harmon's Murphy 1, testing oil in hole 1750-1815 ft. Pender O&G Co.'s Davis 1, co 4330 ft. E. L. Smith Oil Co. & Magnolia's Mooar 1, elev 2519 ft, top salt 750 ft, dr 4315 ft. Transcontinental & Vacuum Oil Co.'s Peckham 1, elev 2155 ft, fsh 525 ft.

TAYLOR COUNTY — Condor Pet. Co.'s Stoker 1, dr 2440 ft. A. H. Gibson et al's Cody 1, dr 1945 ft. J. B. Jameson et al's Webb 1, elev 1905 ft, dr 5635 ft. Mid-Continent Pet. Corp.'s Lindsey 1, dr 860 ft. Hucony Oil Co.'s Richie 1, lcn. Owen-Sloan Oil Co. & Gibson & Johnson's Bingham 1, dr 1480 ft.

TERRELL COUNTY—Big Bend Oil Corp. & F. A. Book's Bassett 1, elev 2396 ft, dr 1680 ft. Transcontinental Oil Co.'s Good 1, elev 2405 ft, fsh 3030 ft.

TERRY COUNTY — Penn Oil Co. Unit Plan's P. Carlisle 1, dr 3040 ft.

UPTON COUNTY—TP Coal & Oil Co.'s Belcher 1, elev 2684 ft, top salt 1310 ft, top lime 3620 ft, sd hfw 3755 ft.

VAL VERDE COUNTY—A. Blume et al's J. P. Yoas 1, lcn. Phantom Oil Co.'s Ingram 1, dr 2765 ft.

WARD COUNTY—Alpine Oil & Dev. Co.'s Dakan 1, sd 2210 ft. C. C. Dearborn & Otto Kirkham's Boogher 1, dr 735 ft. C. C. Dorr & Atlantic's Dorr-Costley 1-A, elev 2493 ft, top salt 1990 ft, top lime 2200 ft, flow oil by heads 2612-14 ft. Gulf Prod. Co.'s Hutchings 3, elev 2659 ft, top salt 1035 ft, pb from 3095 to 3089

ft; Hutchings 4, dr 410 ft; G. W. O'Brien 8, dr 1280 ft. R. F. Owen et al's Johnson 1, sp and sd. Penn Oil Co. & Atlantic's Bennett 2, swab 25 bbls oil after shot, td 2630 ft. Sid Richardson-Kelsey & Magnolia's O'Brien 1, elev 2655 ft, top salt 1230 ft, top lime 2388 ft, flow oil by heads 2555-2686 ft. Shell Pet. Corp.'s Sloan-Owen 1, making oil and water, pb from 4415 ft for shot. Shipley Oil Corp.'s Hayzlett 4, dr 2955 ft. J. E. Smith et al's Clements 1, dr 600 ft. Sturm & Paine's Cummins 1, elev 2443 ft, top salt 780 ft, sd 2350 ft. Sun Oil Co.'s Sealy 1, elev 2680 ft, sd 2555 ft. Tex-Oil Production Co.'s Redman 1-A, elev 2717 ft, salt 1290 to 4133 ft, dr 4610 ft.

CENTRAL EAST TEXAS

ANDERSON COUNTY—Humble O. & R. Co.'s W. L. Johnson 1, Jas. Hall sur, elev 548 ft, Pecan chalk 2908 to 3025 ft, Austin chalk 3200 ft, dr lime 3465 ft. W. H. Roeser & Roeser-Pendleton, Inc.'s, W. L. Moody 1, Jas. Welch sur, elev 349 ft, Austin chalk 4067 to 4422 ft, coring red beds 4960 ft. Sun Oil Co.'s Bowers-Maier 1, E. G. Meyers sur, elev 306 ft, crooked hole 998 ft.

CAMP COUNTY—J. C. Rogers & Southern Pet. Explo. Co.'s L. Enfelt 1, R. M. Montgomery sur, dr 2140 ft.

DELTA COUNTY — W. H. Goodnight & Bob Baker's Simms-Smith 1, lcn. Geo. Kean & J. B. Evans' Smith 1, J. B. Anderson sur, elev 506 ft, sd 1830 ft.

ELLIS COUNTY—G. C. Foster & S. C. Richardson's Moise-Cerf 1, La Pena sur, elev 440 ft, top Austin chalk 531 ft, dr 1425 ft.

FANNIN COUNTY—Ed. V. Parsons et al's Morgan 1, J. E. English sur, elev 668 ft, dr 2435 ft.

FRANKLIN COUNTY — Harper & Byers' H. A. Laws 1, E. S. Rogers sur, rig.

FREESTONE COUNTY — Cranfill-Reynolds Co.'s W. E. Bonner 1, S. T. Ballour sur, dr 3026 ft. Haley & Young's Pierce-Worthy 1, J. L. Chavert sur, sp and sd. O. W. Killam-Phillips et al's R. H. Edwards 1, A. Sanchez sur, elev 402 ft, sp. C. F. Lytle et al's Holt 1, D. Avant sur, elev 469 ft, top Austin chalk 3906 ft, coring sandy-shale 4710 ft. Penn Oil Co.-Dixie Oil Co. & J. R. Black's B. M. Burgher 1, C. Chamar sur, elev 401 ft, dr 3237 ft.

HENDERSON COUNTY—H. B. Ashburn et al's T. E. Terry 1, Arron York sur, sd 1000 ft. E. L. Chapman et al's Cade 1, Simon Weiss sur, dr 2315 ft. Cranfill-Reynolds Co. & La. Oil Ref. Corp.'s J. W. Broome 1, Sam Chears sur, top Pecan chalk 2695 to 2890 ft, dr 3900 ft. Shell Pet. Corp.'s S. T. Stephens 1, I. D. Owen sur, dr 1416 ft.

HOPKINS COUNTY — Lew Wentz et al's S. Millhollen 1, J. Simpson sur, rig.

HUNT COUNTY—Allen & Hager's J. C. George 1, E. Tidwell sur, sp and sd.

LAMAR COUNTY—B. L. Laubenheim et al's Johnson 1, Wm. Driggers sur, elev 667 ft, fsh 3090 ft.

LIMESTONE COUNTY — Haley & Heeman's D. Wilkes 1, J. Breeding sur, sd 690 ft.

MORRIS COUNTY—Geo. McCamey et al's P. M. Staggers 1, G. Forbes sur, sp and sd.

RAINS COUNTY—D. H. Byrd & Owen-Sloan Oil Co.'s J. D. Hill 1, Friend-McMahan sur, sp and sd.

RUSK COUNTY—E. M. Joiner et al's Bradford 3, dr 2680 ft. Magnolia's Duran-Wylie 1, Aquilla sur, elev 431 ft, dr shale 2755 ft.

SMITH COUNTY — Dan Daniel & J. K. Adair's Smith 1, lcn. East Texas Pet. Corp.'s Peoples Bank 1, John McFadden sur, elev 465 ft, Austin chalk 3008-3190 ft, sd 3500 ft. E. L. Chapman & A. M. Sutton's J. M. Hammon 1, Jas Reid sur, dr 2065 ft. Frank Foster et al's (was Deep Rock Oil Co.'s) Bowdoin 1, M. V. Lout sur, dry and abn 4220 ft. Owen-Sloan Oil Co. & R. H. Davis' J. H. Starnes 1, J. W. Allen sur, sd 1322 ft. O. M. Rector et al's M. Dozier 1, Mathew Maise sur, lcn.

TITUS COUNTY — Wainwright-West Oils, Ltd. (W. L. Murrell & Geo. M. Anderson's) Walcott & Lott 1, D. M. Smith sur, dr chalk 2631 ft.

VAN ZANDT COUNTY—Central Oil Co. et al's S. J. West 1, A. C. Walters sur, elev 564 ft, top Austin chalk 3900 ft, coring 4485 ft. Cranfill-Reynolds Co.'s Alexander 1, J. Burleson sur, rig. W. T. Daniels et al's Fannie Cumby 1, John Wright sur, rig. Dennis Oil Corp. et al's C. W. Morris 1, C. L. Morrison sur, dr 2585 ft. Manley-Sprinkle & Evans' Dr. B. C. Andrews 1, M. Neal sur, elev 536 ft, sd 1050 ft. Hartt Pet. Co.'s L. H. Cox 1, A. C. Nugent sur, dk; B. F. Womble 1, P. Young sur, dk. Roy Jenkins et al's J. H. Cox 1, S. P. Ry. sur, lcn. Paulem Oil Corp.'s R. L. Brinn & Gibbard 1, Ray Sunigas sur, dr 1910 ft. L. G. Priest et al's B. Blewett 1, E. Porter sur, dk. Arthur H. Ray & Ward Powell's A. J. Berry 1, Nacogdoches Co. sur, top Pecan chalk 2591 ft, dr 3055 ft. Texas Chief Oil & Royalty Co.'s J. P. Foster 1, F. Montgomery sur, sp and sd. Van Zandt Oil & Dev. Co.'s Sharp-Robinson 1, J. B. Ybarbo sur, top Pecan chalk 2764 ft, dr 2945 ft. Upchurch & Will Thompson's Owlet Green School lot 1, sp.

VAN ZANDT COUNTY (Van Field)—Central Oil Co.'s Peters 1, dk. E. L. Chapman et al's J. B. Clark 1, dk. Cranfill-Reynolds Co.'s Coker-Ledbetter 1, dr 880 ft; A. D. Clark 1, rig. Humble O&R Co.'s W. Freeman 1, Pecan Gap chalk 1580 to 1625 ft, cem cas on oil sand 2850 ft. Imperator Oil Co.'s Carter 1, dk. Pure Oil Co.'s Cannon 1, dr 1400 ft; Clark-Houston 1, dr 350 ft; R. C. Crim 1, pb from salt water at 3082 to 3037 ft; Ellison 1, coring 2775 ft; D. R. Howell 1, testing production 2885 ft; Jarman 2, completing 2600 ft; Jarman 3, dr 500 ft; Jarman 4, dr 480 ft; Leonard 1, dr 900 ft; Thompson 2, testing 2550 ft; Thompson 3, dr 600 ft; A. B. Tunnell 1-A, dr 750 ft; Tunnell 2-A, dr 400 ft; R. L. Wells 1, dr 2400 ft; Wells 2, set cas 2665 ft. Pure Oil Co. & Hill & Hill's Peters 1, cem cas 2890 ft, coring 2900 ft. Shell Pet. Corp.'s B. M. Fowler 2, dr 850 ft.

WOOD COUNTY—Big Indian Oil & Dev. Co. & Tidal Oil Co.'s R. J. King 1, W. M. Barnhill sur, elev 480 ft, sp and sd. Gulf Prod. Co.'s N. E. Carver 1, Kern sur, elev 400 ft, top Pecan chalk 2870 ft, dr chalk 3040 ft. Geo. L. Pace et al's B. G. Dickey 1, sp and sd. Westexas Oil & Royalty Corp. & Owen-Sloan Oil Co.'s Negro Orphanage 1, Chas. E. Rivers sur, elev 361 ft, top Pecan chalk 3043 ft, sd 3132 ft.

EAST TEXAS

CAMP COUNTY—Rogers et al's Enfelt 1, Montgomery sur, arr core 2250 ft.

FRANKLIN COUNTY—Harper Byers Oil Co.'s J. C. Laws 1, Rogers sur, dk.

HARRISON COUNTY — Shell Rock Pet. Co.'s Daugherty 1, W. W. Burris sur, set 10-inch cas 185 ft, fsh for ds 1940 ft.

MARION COUNTY—A. A. Tramwell, Tr.'s, Hussey 1, Lockhart sur, dk. Davidson et al's Chatten 1, Grayson sur, topped chalk 1960 ft, setting 6⅝-inch cas 2467 ft after good show oil in chalk, td 2515 ft.

MORRIS COUNTY—Tucker & Fullwood's Henderson 1, J. C. Riddle sur, rig up.

RED RIVER COUNTY—E. L. Chapman's Norris & Guest 1, Larkin sur, dk. D. M. Buffington's Hoosier 1, Hughart sur, sd 2365 ft. Shad Harper's Garland 1, Wagley sur, sd 1862 ft. Johnson Pet. Co.'s Randolph 2, Dean sur, sd 2182 ft.

SHELBY COUNTY—Chapparral Oil Co.'s Holt 2, Matthew Moore sur, sd 3004 ft. Benedum & Trees' McCann 1, Nancy Beattie sur, set 9-inch cas 2762 ft, coring 3432 ft.

TITUS COUNTY—Canadian Oil Co.'s Walcott 1, D. N. Smith sur, set 10-inch cas 40 ft, dr 1620 ft.

TEXAS GULF COAST

Completion

Company, Well and Location	Initial Production Bbls.	Depth
WASHINGTON COUNTY—		
W. D. Anderson et al, Hughes 1, 3 mi n Chappel Hill	*	3512

AUSTIN COUNTY—Jas. T. O'Hara et al's Batla 1, Wm. Smithers sur, dr 3900 ft shale. Black Oil Co.'s Lancashire 1, 3 mi s Sealy, sd 3050 ft. McInnery & Harris' Hattie McDade 1, Jno. Martin sur, sd 500 ft. Empire's J. T. Boyd 1, San Felipe, dr 1110 ft shale. Mid-Kansas O&G Co.'s Sommers 1, 3 mi n Chappel Hill, dr 500 ft.

BRAZORIA COUNTY—Thos. Faust et al's Fee 6, 2 mi s Nash Dome, dr 4050 ft sand and lime. Steele & Strickland's Lochridge 1, near Lochridge, dk. Shell's Blakely-Winston 1, 2 mi ne Danbury, set two joints screen at 4825 ft, testing. Rycade's Wisdom 26, Nash Dome, dr 6050 ft shale. Rycade and Amerada's Rapid City 1, 2 mi s Danbury, dr 1150 ft gbo. Rucks & Patterson's Hunter 1, sw Hoskins Mound, sd 1180 ft. The Texas Co.'s Ewing 1, Manvel area, dr 2520 ft shale and lime. Mills Bennett's Randon 1, Allen Dome, dr 2275 ft gbo.

CHAMBERS COUNTY—Pure's Mayes 10, Lost Lake, tested dry at 2815 ft, dr deeper; Mayes 11, dr 900 ft; Lost Lake 4, td 4500 ft, hole heaved to 2650 ft; Kirby 1, Cove area, ru. Shell's Herff 1, Moss Bluff, dr 2275 ft sticky shale. Superior Oil Co.'s H. Jackson 1, dr 100 ft.

FORT BEND COUNTY—Gulf's Brazos Valley Irrig. Co. 2, 3 mi sw Clodine, lcn; Moore 21, Moores Field, dr 1331 ft sand and boulders; Moore 22, ru. Pure's Jackson Brown 1, 5 mi e Long Point, sp.

GRIMES COUNTY—Cranfill-Reynolds' Baylor 1, 9 mi se Navasota, dr 3000 ft shale.

HARRIS COUNTY—Humble's Simms-Smith 77, Goose Creek, failed to get test at 5835 ft with dr stem tester in sand with odor oil and gas; Warren 7, Hockley, cored sand at 4923 ft; Minnetex 2, Mykawa, dr 1201 ft rock; Siadous 1, Mykawa, on 3 hr test made 60 bbls 39 gravity oil, depth 4933 ft. Watts Drlg. Co.'s Hubert 1, Mykawa, plugging from 5525 ft back to 4530 ft to test. Higgins O&F Co.'s Siadous 1, Mykawa, dr 6636 ft shale. Mrs. J. C. Baldwin's Kitzman 1, 2 mi n Cypress, sd 4250 ft. Martin-Drake-Jones' Haney 1, 3 mi e Elena, dr 3960 ft shale. Sloan Prospecting Co.'s Ulrich 1, 5 mi nw Barbers Hill, dr 4510 ft shale.

JEFFERSON COUNTY—Westbury Oil Co.'s West 1, S. Choate sur, sd 2850 ft. Gulf's Bordages 8, Fannett, dr 6565 ft shale and lime; Burrell 5, dr 4029 ft hard sand; G. W. Junker 1-A, tested salt water at 4645 ft after plugging back from 5870 ft, abn. The Texas Co.-Houston Oil Co.'s Fitzhugh 1, Big Hill, set cas at 4975 ft, washing; The Texas Co.'s Pipkin 2, Big Hill, abn at 6010 ft. Bayou Oil Co.'s Hooks-Bordages 1, 2 mi s Voth, dr 3075 ft.

LIBERTY COUNTY—Gulf's McFadden 1, Moss Bluff, dk. Humble's Sabine Tram 1, M. Whittington sur, near Devers, ru. Harrison Oil Co.'s Jamison 1, N. Dayton, plugged to 4950 ft, set screen, flowed 1200 bbls, 95 per cent salt water, will try to seal off water. The Texas Co.-Paraffine Oil Co.'s Fee 1, N. Dayton, dr 3771 ft sand. Houtex Prod. Co.'s Brown-Tadlock 1, N. Dayton, sdtr 3700 ft. W. H. Borsodi's Gulf Fee 1, N. Dayton, dr 1950 ft lime. Gulf's Weiser 1, Hankamer, dr 6600 ft hard sand; Boyt 4, ru; Boyt 5, dr 900 ft. Cranfill-Reynolds' Moores Bluff Corp. 2, Esperson field, flowing 326 bbls per day from 2342 ft; Esperson 9, set cas at 2665 ft over sand to be tested. Yount-Lee Oil Co.'s Moores Bluff Corp. 2, Esperson field, pumping 85 bbls daily at 3338 ft.

MATAGORDA COUNTY—Cockburn et al's Hawkins 1, Shepherds Mott, dr 4960 ft shale.

MONTGOMERY COUNTY—Kelly Baker's Juergus 2, 3 mi Conroe, sd 1900 ft.

ORANGE COUNTY—Gulf's W. H. Stark 1, Port Neches, ru. The Texas Co.'s Kuhn 2, Port Neches, ru; Stark 2, dr 1000 ft sand.

VICTORIA COUNTY—Humble's Welder 1, 3 mi se Nursery, dr 6614 ft shale.

WALKER COUNTY — Indian Pet. Co.'s Smither Bros. 1, ne Huntsville, dr 3510 ft shale. Joyce Richardson et al's Smither 1, 12 mi n Huntsville, dr 1550 ft shale. George Hindman's Delta Ld. & Lbr. Co. 1, 3½ mi w New Waverly, sd 1200 ft.

WALLER COUNTY — W. P. Morris & Veihl's Chapman 1, 6 mi n Hempstead, sd 2075 ft. Kirby Pet. Co.'s Davis 2, San Felipe, dr 400 ft sand. Humble-Valley's R. Hardy 1-B, Raccoon Bend, lcn.

WASHINGTON COUNTY—Anderson et al's Hughes 1, 3 mi n Chappel Hill, abn at 3510 ft; Muellar 1, ne Burton, sp. L. O. Gleason's Nowak 1, near Brenham, sd 1560 ft.

SOUTH LOUISIANA

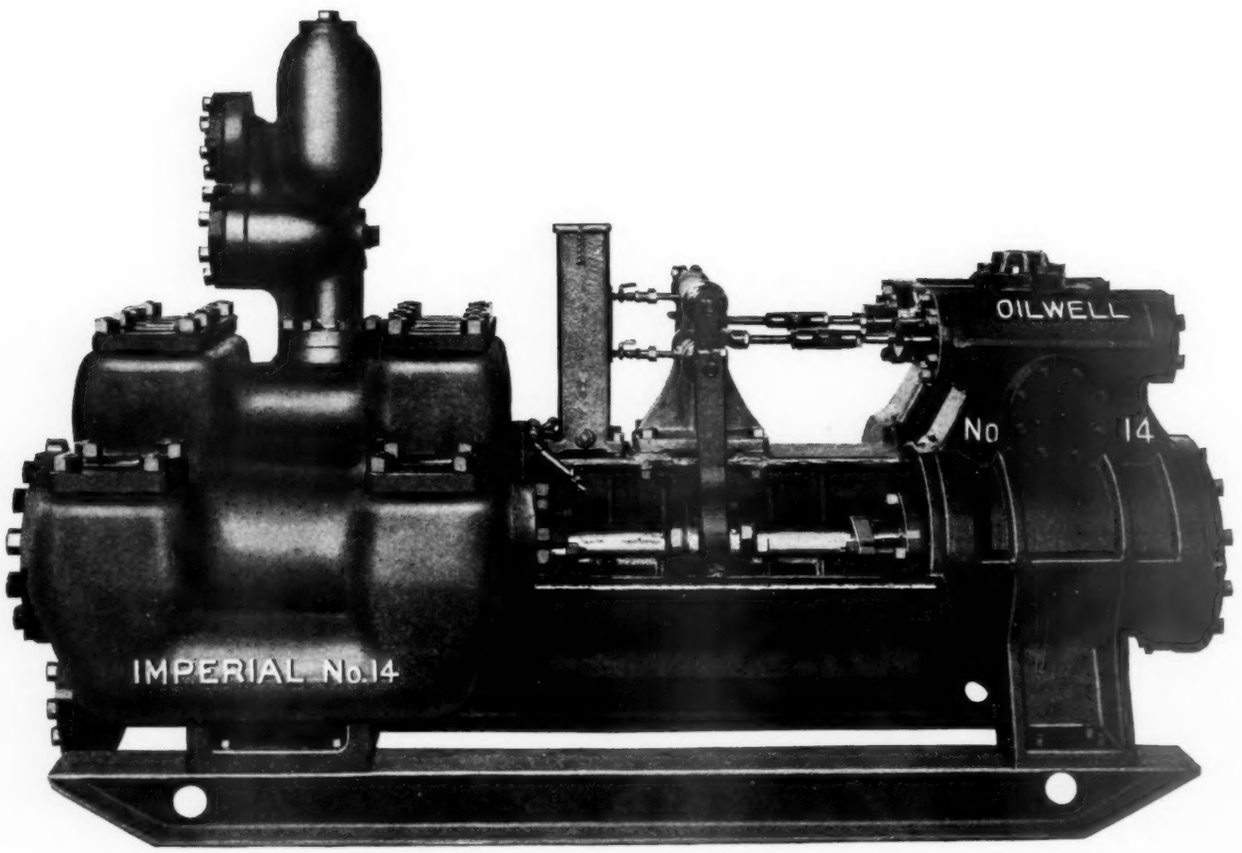
ACADIA PARISH — Yount-Lee Oil Co.'s Houssiere-Latrielle 8, Evangeline, dr 6475 ft sandy shale; C. O. & M. Co. 6, dr 4850 ft sand. The Texas Co.'s Rayne Hrs. 5, Evangeline, s side, dr 7635 ft sand rock. Calcasieu Oil Co.'s Hayes 1, 10-8s-1w, dr 5000 ft gbo.

ASCENSION PARISH — Gulf's United Lands Co. 18, Sorrento, ru.

AVOYELLES PARISH — R. A. Tippett's Chatalin 1, 5-1n-3e, dr 1000 ft.

CALCASIEU PARISH—Adams Oil Co.'s Roderick 1, Starks, ru. J. O. Davis' Industrial Lbr. Co. 1, Starks, sd 3775 ft. Union Sulphur

Announcing the



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Imperial No. 14 Slush Pump

14" x 7¼" x 14"

350 lbs. Steam Pressure

Fluid End Shop Tested to 3000 lbs. per sq. inch

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CITY, PA.

BRANCH STORES
IN ALL OIL FIELDS

Co.'s Moss 1, Lockport wildcat, dr 4300 ft gbo. Shell's Heyd 1, Iowa, dk.

CAMERON PARISH — The Texas Co.'s Calcasieu Lake A-5, S. Calcasieu Lake, dr 3200 ft gbo and lime; State E. Hackberry 6, cor sand 3690 ft. Pure's Yount-Lee 9, Sweet Lake, dr 4515 ft hard lime. Shell's Watkins 14, Black Bayou, abn at 1075 ft in cap rock; No. 15, lcn. Vacuum's Cameron Meadows Ld. Co. 1, e Johnson Bayou, dr 3118 ft sand, no show.

IBERIA PARISH—The Texas Co.'s State Vermilion Bay 5, lcn. Jefferson Lake Oil Co.'s Lake Peigneur 5, Jefferson Island, dr 660 ft; No. 6, sd.

IBERVILLE PARISH—Shell's Wilbert 4, White Castle, dr 4450 ft hard sandy lime. Standard's Schwing 4, Bayou Blue, set cas to test at 1920 ft; Wilbert 6, Bayou Blue, dr 2335 ft gbo; Cyrus Case 1, Bayou des Glaise, dr 2507 ft hard sandy lime.

JEFFERSON DAVIS PARISH—Yount-Lee Oil Co.'s George Courtney 1, Welsh, moving in; Abbott 1, ru. Pure's Day 1, 1½ mi sw Welsh, dr 3600 ft, second hole.

LA FOURCHE PARISH—Gulf's City of New Orleans 1, Wisner dome, dr 6140 ft sand and shale. The Texas Co.'s LL & E-Leesville 1, Leesville dome, moving in.

PLAQUEMINES PARISH—Humble's Cockrell-Moran 1, T 20s, R 26e, preparing to deepen from 1738 ft after testing salt water; Lake Washington 1, T 20s, R 26e, dr 4600 ft shale. The Texas Co.'s Garden Island 4, moving in.

ST. LANDRY PARISH—Elbof Explorations' Valmont Ledoux 1, Eunice, sd 4360 ft. The Texas Co.'s Botany Bay Fee 6, Port Barre, tested salt water at 3673 ft, will deepen. Gulf's Gaudet 3, Port Barre, dr 3688 ft; W. H. Hoskins 2-A, Port Barre, set cas at 3420 ft to test. Hebert-Baker's Fisher 1, Sec. 10-3s-4e, dr 4050 ft shale.

ST. MARTIN PARISH—The Texas Co.'s St. Martin Ld. Co. Fee 1, Hager dome, abandoned at 6612 ft; No. 2, dr 5865 ft; Iberville Ld. Co. 1, Hager dome, dr 6465 ft water sand. Yount-Lee's Hebert Heirs 1, Anse La Butte, dr 5930 ft sand, no show. Rycade-Humble's Bayou Bouillon 9-B, dr 3575 ft shale.

ST. MARY PARISH — Empire-Vacuum's Oscar Zenor 1, 2 mi n Patterson, dr 6189 ft water sand. Pure's Wax Lake State 2, ru and sd.

ST. TAMMANY PARISH—Washington & St. Tammany Drlg. Co.'s Causack 1, Sec. 8-6s-10e, dr 3200 ft sandy shale.

TERREBONNE PARISH — Chas. Paggi's Evergreen 2, Houma, dr 1750 ft gbo. The Texas Co.'s LLE-Bay Junop 1, lcn; Caillou Island 2, bailing, showing little oil; Four Isle dr 620 ft gbo; Lake Pelto B-3, dr 4650 ft cap dr 62 0ft gbo; Lake Pelto B-3, dr 4650 ft cap rock; Bay St. Elaine 4, dr 3485 ft sandy shale; Lake Barre State 4, driving piling; Dog Lake State 2-A, bldg dk foundation.

OKLAHOMA

WOODS COUNTY—T 28n, R 16w, Sec. 23, Peerless, Cromwell 1, c nw ne, dr 2945 ft, r.u.s.t. 5160 ft.

GRANT COUNTY—T 28n, R 7w, Sec. 27, Gypsy's Bilderback 1, se c, sd 5295 ft, Wilcox 5647-49 ft, hfw, td 5926 ft. T 28n, R 4w, Sec. 12, Boucher et al's Dedman 1, sw c se, hfw 3105-30 ft, sd 4735 ft, dr by casing.

WOODS COUNTY—T 27n, R 16w, Sec. 33, Sinclair's Share 1, c ne se, fsh 6334 ft, td 6790 ft, sd.

ALFALFA COUNTY—T 27n, R 11w, Sec. 12, Smith Bros., Forbes 1, ne c se nw nw, sd 1420 ft.

HARPER COUNTY—T 26n, R 24w, Sec. 14, Sinclair, Howell 1, c sw sw, dr 6658 ft, show oil 6711-16 ft, dr 7769 ft.

GRANT COUNTY—T 26n, R 3w, Sec. 23, Otstot Dev. Co., Tapor 1, ne c se, hfw 3100-25 ft, sd 3250 ft, sd 4365-4415 ft, fsh 4755 ft.

KAY COUNTY—T 26n, R 2e, Sec. 32, J. A. Vincent & Nat'l Union, McNeal 1, nw c ne, sd 2795 ft.

WOODS COUNTY—T 25n, R 15w, Sec. 10, Bu Vi Bar et al, Fee 1, se c sw fsh 6104 ft, sd.

GRANT COUNTY—T 25n, R 4w, Sec. 22, Cowden, Volmer 2, ne c se ne sw, lost tools sd 5640 ft.

ALFALFA COUNTY—T 24n, R 11w, Sec. 14, J. V. Bailey et al, Acre 1, c sw ne, water 4649 ft r.u.s.t. 4660 ft, bailing mud.

GARFIELD COUNTY—T 24n, R 6w, Sec. 9, Pulse & Beamer, White 1, se c nw, hfw 4730-4800 ft, sd 5556 ft. T 23n, R 4w, Sec. 32, Shell et al, Loomis 1, c nw nw, sd 200 ft.

NOBLE COUNTY—T 22n, R 1w, Sec. 28, Gypsy et al, Berstram 1, se c nw, bldg rig.

WOODWARD COUNTY — T 21n, R 19w, Sec. 19, Burgoyne Bros., Merklin 1, swc se ne, sd 1910 ft.

MAJOR COUNTY—T 21n, R 19w, Sec. 23, Keller et al, Horton 1, c ne ne, spd and sd.

GARFIELD COUNTY—T 20n, R 4w, Sec. 10, Continental et al, Brown 1, cel ne nw sw, show gas 3145-62 ft, r.u.s.t. 4625 ft, 20M gas 5875-80 ft, mudded off gas, run 7-inch 5780 ft.

BLAINE COUNTY—T 19n, R 10w, Sec. 13, Washoma, Phillips 1, c nw sw, sd 2945 ft.

LOGAN COUNTY—T 18n, R 3w, Sec. 33, Healy et al, Quier 1, se c sw, sd 3970 ft. T 17n, R 4w, Sec. 34, Currie et al, Katcher 1, sw c ne sw, cellar.

KINGFISHER COUNTY — T 16n, R 7w, Sec. 6, Gault-Brown, Boch 1, c nw se (owdd) sd 6022 ft.

OSAGE COUNTY—T 29n, R 6e, Sec. 29, Duffield & Howard, et al, 1, ne c nw, spd and sd, show oil 2855-80 ft, td 2886 ft, dry and abn. T 24n, R 5e, Sec. 24, Continental Oil Co., 1, nw c se se, sd 801 ft, show oil 2945-90 ft, dr 3165 ft.

PAWNEE COUNTY—T 23n, R 5e, Sec. 15, Cochran et al, McFadden 1, ne c sw rig. T 21n, R 7e, Sec. 32, Turner et al, Niccum 1, se c ne se, rigged up and sd. Bartlesville 2675-95 ft, hfw sd.

PAYNE COUNTY—T 18n, R 4e, Sec. 6, F. M. Marrs et al, Tietz 1, swc nw se, lcn. T 17n, R 4e, Sec. 4, Wheeler & Mote, Funnell 1, ne c se, dr 2050 ft.

LINCOLN COUNTY—T 17n, R 5e, Sec. 16, Jilson & Kemp, School land 1, se c sw, dr 8-inch cas 2105 ft.

OKFUSKEE COUNTY—T 13n, R 9e, Sec. 15, Erwin et al, W. Allen 1, sec sw ne, spd and sd, ur 10-inch cas 2030 ft. T 12n, R 9e, Sec. 36, Henry Oil Co., Harjo 1, nw c, sd 2785 ft, fsh. T 12n, R 10e, Sec. 3, Shepperd et al, Shepperd 1, se c nw sw, 3660 ft sd, dr 3664 ft. T 10n, R 10e, Sec. 25, Transcontinental et al, Lasley 1, swc nw, lcn 12-inch cas 1315 ft.

MUSKOGEE COUNTY—T 11n, R 19e, Sec. 21, E. Mills et al, Martin 1, nw c se, sd 1001 ft.

McINTOSH COUNTY—T 10n, R 14e, Sec. 31, Jennings Bros., Crabtree 1, se c nw sw, show gas 4100 ft, hfw 4388-4625 ft, dry and abn.

PITTSBURG COUNTY—T 9n, R 16e, Sec. 32, Pattison et al, McDuff 1, sw c nw se, Wx 5443-5511 ft, show oil 5446-70 ft, 1M gas 5464-80 ft, sand 5556-66 ft, fsh swabbing water.

HASKELL COUNTY—T 9n, R 18e, Sec. 10, Marion Oil Co., Sanders 1, nw c ne sw, sd 2692 ft.

LATIMER COUNTY—T 6n, R 22e, Sec. 23, Limestone O&G Co., Shaw 1, nwc ne nw, sd 1700 ft, show gas 1570-77 ft, casing trouble 2640 ft.

OKLAHOMA COUNTY—T 13n, R 1w, Sec. 13, Tom Slick, Martin 1, c nw nw, td 6964 ft, water, recemtg, pb to 6771 ft. T 13n, R 3w, Sec. 35, Magnolia et al, Johnson 1, ne ne sw, dr 5266 ft. T 11n, R 2w, Sec. 3, Ryan Consolidated, Lawton 1, ne nw, fsh 3985 ft, dr 5569 ft.

POTTAWATOMIE COUNTY—T 6n, R 3e, Sec. 22, Payne Drlg. Co., Bullock 1, se c ne, td 3940 ft, r.u.s.t., sand 4295-98 ft, hfw. T 6n, R 3e, Sec. 36, Sykes et al, Cook 1, sw nw ne, rig.

CLEVELAND COUNTY—T 6n, R 1e, Sec. 20, Brownfield, Corbett 1, c sw ne, r.u.r., dr 4960 ft.

HUGHES COUNTY—T 9n, R 12e, Sec. 29, Canady, Canard 1, sw c nw nw, 1M gas 2815 ft, sd.

SEMINOLE COUNTY—T 6n, R 6e, Sec. 19, Superior, Morgan 1, se c, r.u.r., sand 2775-90 ft swab 25 bbls.

ROGER MILLS COUNTY—T 1sn, R 24w, Sec. 23, Bucy & Stone, Williams 1, c sw, cemented surface pipe, sd 2230 ft. T 11n, R 26w, Sec. 4, L. C. Hivick, Davis 1, c nw ne, sd 2840 ft.

CANADIAN COUNTY—T 10n, R 6w, Sec. 1, J. V. Bailey, Robinson 1, c ne nw, sd 150 ft.

BECKHAM COUNTY—T 8n, R 22w, Sec. 20, Carson et al, Denby 1, sw c se ne, sd 1700 ft.

GREER COUNTY—T 6n, R 24w, Sec. 17, I. T. I. O. et al, Fee 1, c ne, sd 2090 ft, dr 2243 ft.

CADDO COUNTY—T 6n, R 13w, Sec. 8, Abernathy et al, Horton 1, se c, sd 580 ft.

COMANCHE COUNTY—T 3n, R 9w, Sec. 3, Okla. Nat. Gas Co., Doebel 1, ne c sw sw sd 150 ft, show gas 1420-50 ft.

STEPHENS COUNTY—T 2n, R 8w, Sec. 30, Smythe & Nash, Johnson 1, ne c, sd 2483 ft, sand 2480-83 ft, pumps 15 bbls, complete.

COTTON COUNTY—T 2s, R ow, Sec. 8, Thomas Medlin, Johns 1, sw c se, sd 1260 ft, td 2527, dry and abn.

HUGHES COUNTY—T 5n, R 10e, Sec. 30, Erwin et al, Jones 1, se c ne, rig, dr 1530 ft. T 5n, R 11e, Sec. 15, J. J. Wright, Roberts 1, se c sw, r.u.s.t., rig.

GARVIN COUNTY—T 4n, R 1e, Sec. 11, W. H. Peckham et al, Mullins 1, c w2 w2, dr 4375 ft. T 4n, R 3e, Sec. 10, C. R. Obermeyer, Stricklin 1, ne c sw, sd 140 ft, dr 1560 ft.

ATOKA COUNTY—T 3s, R 10e, Sec. 18, Brookshire et al, Guinn 1, nw c nw, sd 80 ft.

CARTER COUNTY—T 4s, R 2e, Sec. 32, Tex-Okla. Drlg. Co., Anderson 1, se c ne se, dr 2345 ft.

MARSHALL COUNTY—T 5s, R 5e, Sec. 17, Jordan et al, Penn Mutual Life Ins., nw c ne se, sd 700 ft.

BRYAN COUNTY—T 9s, R 9e, Sec. 36, W. C. Endicott et al, Craig 1, c nw ne, fsh 2200 ft.

WOOWARD COUNTY—T 23n, R 17w, Sec. 23, Prairie Oil & Gas et al, Wilbur 1, ne c, dr 6028 ft, r.u.s.t., 6270 ft.

CLEVELAND COUNTY — T 10n, R 2w, Sec. 8, Prairie, Slick & Phillips, Sudik 1, c ne ne, sd 7720 ft, td, dry and abn.

KANSAS

SUMNER COUNTY — Davidson et al, Strickland 1, sw se, 12-35-1w, rig.

STEVENS COUNTY—Argus Oil Co., Armstrong 1, cnl, s½ n2, 16-34-39w, dr 2245 ft. W. Sidwell et al, Kelly 1, sw ne 16-34-38w, sd 1600 ft. Argus Oil Co., Parker 1, c ne 30-34-38w, dr 2445 ft.

BARBER COUNTY—Skelly, Temple Ranch 1, sw ne, 13-34-15w, Top Viola 5241 ft, td 5246 ft, show oil, cas trouble.

SUMNER COUNTY — Morgan and Carey Hawkins 1, sw se, 9-34-1e, dr 3983 ft.

STEVENS COUNTY—Argus Gas Co., Christopher 1, c sw 11-33-39w, ru. McNabb et al, Ramey 1, c sw, 11-33-38w, dr 2450 ft. Argus Oil Co., Smith 1, c sw, 13-33-37w, td 2577 ft, rog 8-inch cas.

CHAUTAUQUA COUNTY—Valentine, Patterson 1, nw se sw 2-33-9e, dr 1600 ft.

SEWARD COUNTY—Mangle, Younger 1, c se nw, 24-32-39w, spd and sd. Argus Gas Co., Hobble 1, c se 17-32-37w, fsh tools 2625 ft.

BARBER COUNTY—Phillips & Robertson, Powell 1, c se se, 11-32-10w, fsh tools 4023 ft.

COWLEY COUNTY—Prairie, Desbaugh 1, se c lot 27, 18-32-8e, setg 6-inch cas 2090 ft. Roth & Faurot, Adams 1, c sw ne ne 19-32-8e, dr 250 ft.

HARPER COUNTY—Beeler et al, Bear 1, c ne 21-31-6w, sd 1830 ft.

COWLEY COUNTY—Milton & Mead Bros., Tatum 1, se sw, 11-31-6e, sd 3100 ft.

SUMNER COUNTY—Hatfield et al, Dauber 1, ne c, 18-30-1w, spd and sd.

ELK COUNTY—H. F. Fleming, Sherod 1, nw c 16-29-9e, td 2657-60 ft, sub 100 bbl oil and 100 bbls water.

SEDGWICK COUNTY—McCulloch, Buckles 1, nw se 3-28-1w, sd 1155 ft.

FORD COUNTY—McNabb et al, Fowler 1, c se 26-27-22w, sd 400 ft.

BUTLER COUNTY—Martin et al, Flanigan 1, c sw se sw, 29-27-3e, ur 6-inch cas 2820 ft.

GREENWOOD COUNTY — Mallory et al, Denchfield 1, se nw 12-27-9e, dr 660 ft. F. Konday et al, Rook 1, nw ne ne 7-27-12e, dr 1200 ft.

PRATT COUNTY—Skelly, Johnson 1, ne sw 21-26-17w, dr 4635 ft. Wilcox, Unknown 1, sw nw 7-26-15w, td 2785 ft, fsh bit. O'Haver & Jones' Gareke 1, c ne sw 7-26-14w, dr 4346 ft.

RENO COUNTY—Wilson et al, McPheeters 1, c s½ nw, 22-26-8w, sd 4360 ft. Valerius, Stevens 1, c ne se ne, 6-26-7w, sd 1350 ft.

SEDGWICK COUNTY — Travender et al, McLena 1, se sw se, 23-26-1w, sd 975 ft. Johnson, Petrie 1, sw se 35-26-1w, dr 750 ft.

BUTLER COUNTY—Liggett, Guanther 1, c se ne nw, 29-26-7e, spd and sd.

HODGEMAN COUNTY—Swain et al, Kenthorne 1, c nw 21-25-24w, dr 1475 ft.

EDWARDS COUNTY—Dixie-Amerada, Mc-

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BETTIS Records

Gulf Coast deep wells *Bettis-equipped*

Where there's deep drilling you'll find Bettis Protectors serving the wells —almost invariably. In the Texas-Gulf Coast fields, as well as in California, the deep holes are being drilled more economically with fewer twistoffs and faster by reason of Bettis protection. Take the report of The Oil Weekly in its February 28th issue, for instance. Twenty-two deep holes are listed and all except two of the wells were drilled or are being drilled with Bettis-equipped pipe. In California 98% of all deep holes now drilling are Bettis jobs. The universal adoption of this Product has been accomplished within two years. A drilling well without Bettis protection is operating at a handicap.

"Best bet yet!"

FULLY PATENTED

Photo of Expander tool showing application of a Bettis Drill Stabilizer partially slid over cone. The complete operation of installing a Stabilizer or Protector requires only a few months.

are "piling up"!

Deepest Hole On Texas-Louisiana Gulf Coast 8150 Feet

By RICHARD A. JONES, *Geologist*

Clipped from the Oil Weekly Feb. 28

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HOLES OF TEXAS-LOUISIANA GULF COAST BELOW 7000 FEET IN DEPTH

	Feet
[redacted] Oil Company, Chambers County Agricultural Association 4, Barbers Hill, Chambers County, Texas	8150
[redacted] Oil Company, Crowley Oil and Mineral Company 4, Evangeline (Jennings), Acadia Parish, Louisiana	8145
[redacted] Oil Company, Starks 1, Cameron Parish, Louisiana, drilling	7536
[redacted] Oil Company, Kirby 1, Barbers Hill, Chambers County, Texas	7502
[redacted] Oil Company, Houssiere-Latrielle 7, Evangeline (Jennings), Acadia Parish, Louisiana, deepest producing well	7447
[redacted] Corporation, Heisig 1, Hamshire, Jefferson County, Texas	7305
[redacted] Company, Houssiere-Latrielle 6, Evangeline (Jennings), Acadia Parish, Louisiana, second deepest producing well	7292
[redacted] Company, Industrial Lumber Company 13, Calcasieu Parish, Louisiana	7207
[redacted] Corporation, Miller 1, Lockport, Calcasieu Parish, Louisiana	7138
[redacted] Company, Glass 1, Humble, Harris County, Texas	7019

SOME DEEP HOLES OF TEXAS-LOUISIANA GULF COAST BETWEEN 6000 AND 7000 FEET IN DEPTH

	Feet
[redacted] Corporation, Kirby A-8, Barbers Hill, Chambers County, Texas, third deepest producing well	6416
[redacted] Company, Bordages 3, Fannett, Jefferson County, Texas	6488
[redacted] Company, O'Brien 1, Refugio, Refugio County, Texas	6489
[redacted] Company, deVilbiss 2, Jeff Davis Parish, Louisiana	6631
[redacted] Company, Nona Mills 1, Jefferson County, Texas	6722
[redacted] Company, Moore 19, Orchard, Fort Bend County, Texas	6756
[redacted] Company, Gladys 6, Spindletop, Jefferson County, Texas	6765
[redacted] Company, Simms 1, Evangeline (Jennings), Acadia Parish, Louisiana, drilling	6800
[redacted] Company, Flato 4, Kingsville, Kleberg County, Texas	6814
[redacted] Company, Yount-Lee 7, Sweet Lake, Cameron Parish, Louisiana, cemented December, 1929	6881
[redacted] Company, Hartfield 1, Needville, Fort Bend County, Texas	6889
[redacted] Company, Simms-Smith 74, Goose Creek, Harris County, Texas	6967

Louisiana, northwest of the city of Lake [redacted]nings field of Louisiana, the distance of Charles. In this field [redacted] wells have [redacted] 2500 feet [redacted] 10,000 f[redacted]

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Genuine Anti-friction All-rubber

Carty 1, sw 22-25-17w, td 4345 ft., pulling back. Barnsdall, McCarty 1, nw ne 31-25-17w, td 4547 ft, r.u.s.t.

GREENWOOD COUNTY—John Harwood, Good 1, c sw nw ne, 36-25-9e, dr 495 ft.

WOODS COUNTY—Bundy-Smith & O'Neil, Ford 1, ne nw, 28-25-13e, spd and sd.

RENO COUNTY—Skelly, Birkett 1, ne sw 3-24-7w, Wilcox 4172-4210 ft, hfw, td 4247 ft, sd, pb 2191 ft, and sd.

STAFFORD COUNTY—Gibson et al, Mueller 1, c sw 11-23-14w, dr 3933 ft.

HARVEY COUNTY — Margaret Gay Oil Co., Grouse 1, nw ne nw 29-23-1w, sd 3360 ft.

RENO COUNTY—W. C. McBride, Bacom 1, c sw ne sw, 36-23-5w, dr 2370 ft.

WOODSON COUNTY — Derby & Spencer, Kinyon 1, cnl se nw 29-23-15e, dr 400 ft.

HODGEMAN COUNTY—Phillips, Houseman 1, c ne 30-22-22w, td 5039 ft, sd hfw.

STAFFORD COUNTY—Midwest, Richardson 36, Sec. 36-22-12w, rig Boucher, Groves 1, ne c 9-22-11w, rig.

RENO COUNTY—Witt et al, Olsen 1, se nw 14-22-6w, hfw 3575 ft, dr 3910 ft. Burgher, Fair 1, c se ne ne 14-21-10w, hfw 3165-88 ft, dr 3302 ft.

McPHERSON COUNTY—Harry Skelly et al, Newfeldt 1, se ne 19-21-3w, rig.

LYONS COUNTY—Sheedy et al, Ewers 1, c ne se nw, 4-21-10e, dr 2350 ft.

LINN COUNTY—Ferguson & Hiatt, Carple 1, ne se sw 22-21-22e, rig.

RUSH COUNTY—Prairie, Black 1, sw ne, 11-20-18w, sd 4041 ft, hfw.

RICE COUNTY — McCulloch, Williams 1, c ne 35-20-8w, sd 1438 ft. Derby, Johnson 1, c nw ne se 24-20-6w, hfw 3652-58 ft, dry and abn.

McPHERSON COUNTY—Millmack, Decker 1, nwc 11-20-3w, dr 1900 ft.

CHASE COUNTY—Steinbushel et al, Stephenson 1, ne sw 4-20-6e, setg 8-inch cas 1440 ft. Transcontinental & Cheney, Wassell 1, ne se 36-20-9e, dr 1500 ft.

LYON COUNTY—Alladin & Phillips, Ratcliff 1, swc 29-20-10e, spd.

RUSH COUNTY—Danciger, Bell 1, c sw 16-19-8w, sd 3498 ft.

MARION COUNTY—Marshall et al, Higgens 1, ne c 33-19-5e, rig.

CHASE COUNTY—Steinbushel et al, Cook 1, se c 195 27, 31-19-8e, fsh 1940 ft.

RICE COUNTY—Tatlock et al, Ploog 1, c sw se 33-18-9w, rig. Urschell et al, Lipps 1, c sw sw 27-18-6e, dr 1810 ft.

CHASE COUNTY—E. W. Marland, Altenmus 1, se nw 33-18-8e, dr 2950 ft.

ELLSWORTH COUNTY — Tatlock et al, Sacken 1, c sw se 25-17-9w, hfw 3283-88 ft, co td 3391 ft.

McPHERSON COUNTY—Dixie, Johnson 1, swc 20-17-3w, hfw, 3539-53 ft, hfw 3556-80 ft, dry and abn. Galt-Brown et al, Zeitlow 1, c ne se se, 7-17-1w, ur 6-inch cas 2625 ft.

NESS COUNTY—Clark et al, Vaughn 1, se sw 28-17-22w, spd.

BARTON COUNTY — Prairie, Davidson 1, nw se 4-16-11w, show oil and water 3335 ft, sd.

DICKINSON COUNTY—Prairie and Phillips, Rumold 1, c nw sw ne 12-16-2e, td 3205 ft, dry and abn. Hiatt & Durham, Went 1, nw c 17-16-2e, spd.

MORRIS COUNTY—Urschell et al, Scott 1, ne sw 6-16-6e, dr 2115 ft. Benkenson et al, Seeeunm 1, sw se 24-16-9e, rig.

ELLIS COUNTY—Rush Oil Co., Gatewood 1, nw 4-15-20w, ur 6-inch cas, td 2960 ft.

DICKINSON COUNTY—Cress et al, Sandon 1, ne c 12-15-2e, ru and sd.

TREGO COUNTY—Dixie & Amerada, Reitmeyer 1, c ne ne 19-14-21w, ur 6-inch, td 3935 ft.

DOUGLAS COUNTY — Steinbushel et al, Unknown 1, sw ne nw, 34-14-21e, dr 810 ft.

ELLIS COUNTY—Streeter & Stearns, Laiker 1, sw ne 26-13-20w, sd 1294 ft.

DICKINSON COUNTY — Emery-Curtis & Bryan, Hevner 1, c nw se 31-13-3e, dr 1500 ft. Kroeger et al, Diche 1, c nw ne ne 17-13-4e, dr 2730 ft.

TREGO COUNTY—Day, Guyler 1, c sw ne ne 36-12-31w, sd and spd.

ELLIS COUNTY — Central Commercial, Helms 1, se ne 2-21-20w, dr 300 ft.

TREGO COUNTY—E. H. Morgan, Whitehair 1, nw se 9-12-13, sd 1040 ft.

SHAWNEE COUNTY — Jenkins & Scott, Haden 1, ne se 8-12-14e, sd 1040 ft. Jenkins &Scott, Haden 1, se nw 10-12-17e, sd 550 ft.

LEAVENWORTH COUNTY—Forrester et al, Yazel 1, cel se se 18-12-22e, setg 6-inch cas 1215 ft.

ELLIS COUNTY—Byrens et al, Fisher 1, nw se 4-11-20w, sd 1000 ft.

RUSSELL COUNTY—Gilbreath et al, Bratton 1, c ne 33-11-13w, sd 1010 ft.

SHAWNEE COUNTY—Forrester, Hummer 1, ne c 14-11-16e, dr 2800 ft. Jenkins & Scott, Unknown 1, nw ne 28-10-15e, sd 985 ft.

ROOKS COUNTY—Krueger, Steis 1, nw se sw, 12-9-16w, sd 570 ft.

CLAY COUNTY—Chrisler, Tivler 1, se c, 19-8-3e, spd and sd.

GRAHAM COUNTY—Madolin, Unknown 1, c se sw sw, 27-7-26w, spd and sd.

RILEY COUNTY — Derby-Skow Bros., Lundstrum 1, ne 32-7-5e, sd 2270 ft. Gray et al, Smith 1, ne se 30-6-6e, sd 1970 ft.

NORTON COUNTY—A. L. Richards, Colby 1, c sw 17-4-21w, rig.

MARSHALL COUNTY—Swicker & Simcox, Remple 1, c n½ nw 22-4-9e, dr 1000 ft. Blazier et al, Runkel 1, se nw 13-2-6e, mch.

NORTH LOUISIANA

Company, Well and Location	Initial Production Bbls.	Depth
BOSSIER PARISH (Cartersville)—		
Lee Kennebrew et al, Garrett 1, 36-23-12	*	3180
Tippett et al, Holmes 1, 36-23-12	190	3175
SABINE PARISH (Zwolle)—		
Henshaw et al, Sabine Lbr. Co. A-2, 31-8-12	*	2651
Lion O&R Co. & Lide et al, Sabine Lbr. Co. 2, 31-8-12	36	2224
O'Brien Bros.' Colquitt 1, 32-8-12	*	2575
Olsan Bros., Leone 1, 32-8-12	80	2575

BIENVILLE PARISH—W. A. Nichols' McDermott 1, 28-18-6w, dr 750 ft.

BOSSIER PARISH — Ark. Fuel Oil Co.'s Bolinger 2, 38-23-11, dr 3127 ft; Bolinger 3, 38-23-11, rig up; Bolinger 4, 38-23-11, set 10-inch cas 198 ft, dr 205 ft; Barnett 1, 25-23-12, set 6⅝-inch cas 3135 ft, 750 ft oil in hole, 12 ft sand, wosr, td 3159 ft; Marks Meyer 1, 36-23-12, old well arr deepen, td 3088 ft; Floyd 1, 25-23-12, tested dry 3165 ft, wo, td 3176 ft; Peyton 2, 30-23-11, set 6⅝-inch cas 3135 ft, arr test 3148 ft; Peyton 3, 30-23-11, set 6⅝-inch cas 3130 ft, sd wo, td 3175 ft; Kilgore A-2, 31-23-11, dr 2600 ft; Barnett 2, 36-23-12, dk; Peyton 4, 30-23-11, dk (last 8 wells acquired from Muslow Oil Co.) Bahan & Bahan's Pleasant 1, 25-23-12, sp dr 550 ft; Mays 1, 26-23-12, plugged back to 2970 ft, dr out to 2965 ft, 2200 ft fluid in hole, 50 per cent sw, setting 2-inch tubing, td 3180 ft. Askew & Goodman's Robserson 1, 25-23-12, dr 2600 ft. Deleware La. Dev. Co.'s Bolinger 3, 38-23-11, old well arr deepen; Bolinger 6, 38-23-11, set 6⅝-inch cas 3182 ft, td 3207 ft. Lide et al's Matlock 1, 26-23-12, rig up; Farrington 1, 23-23-12, tested 4 fourbles sw show oil 3152 ft sand from 3126-36 ft, arr deepen. Natural Gas Prod. Co.'s U. S. 2, 31-23-11, 2000 ft oil in hole, 10-ft sand, wosr, td 3177 ft; U. S. 3, 31-23-11, lcn; U. S. 4, 31-23-11, lcn. Greenwood Prod. Co.'s Bolinger 1, 36-23-12, coring 3146 ft. H. L. Hunt's Allen 1, 30-23-11, tested dry 3104 ft, dr 3337 ft; Peyton 7, 25-23-12, lcn; Peyton 8, 25-23-12, rig up; Peyton 9, 25-23-12, dr 3000 ft; Peyton 10, 25-23-12, coring 3127 ft. Woodley et al's L. & A. 2, 14-23-12, sand from 3148-51 ft, coring 3153 ft; Roberson 1, 22-23-12, dr 500 ft. Nell & Lanier's Biedenharn 1, 23-21-14, wosr, 998 ft. Lanier et al's Le Rosen 1, 26-21-14, dk pat. Walker et al's Antrim 1, 28-21-13, sd 3184 ft. H. I. Morgan's Weatherbee 3, 21-19-11, tested sw through ds 2117 ft, coring 2146 ft. Goodman-Johnson's Martin 1, 30-23-11, wosr, td 3169 ft. Magnolia Pet. Co.'s Matlock 2, 25-23-12, dr 1106 ft; Matlock 3, 25-23-12, dk; Dodson 1, 16-23-12, tested dry, show sw 3236 ft, dr shale 3338 ft; Roberson 1, 26-23-12, tested 1 joint oil 14 joints drill water 3189 ft, dr gummy shale 3241 ft. La. Pet. Co.'s H. H. Bain 2, 31-23-11, hit sand 3139-41 ft, coring 3170 ft; H. H. Bain 3, 31-23-11, coring 3250 ft. Texas Co.'s J. W. Peyton 2, 25-23-12, set 6-inch cas 3135 ft, will pump, est 15 bbls daily, td 3140 ft; J. W. Peyton 4, 30-23-11, set 6⅝-inch cas 3133 ft, 300 ft oil in hole, arr perf cas, td 3200 ft; J. W. Peyton 5, 25-23-12, dk; J. W. Peyton 6, 30-23-11, set 6-inch cas 3133 ft, td 3156 ft; Wilkerson 5, 36-23-12, sp dr hard rock 1870 ft. Tippett et al's Holmes 1, 36-23-12, flowing 190 bbls oil daily through tubing sand 3159-64 ft, td 3175 ft. Lee Kennebrew et al's Garrett 1, 36-23-12, dry abn, td 3180 ft. Olsen Bros. et al's Pine Woods Lbr. Co. 1, 25-23-12, lcn. Phillips Pet. Co.'s Floyd 1, 25-23-12, rig up; Bolin 3, 30-23-11, coring 3130 ft; Bolin 4, 30-23-11, dr 2500 ft; Bolinger 1, 38-23-11, dk. E. W. Bateman's Bolinger 1, 38-23-11, sp dr 450 ft; Bolinger 2, 38-23-11, lcn. Eylers O&G Co.'s Wise 1, 35-23-12, sp dr 1700 ft. Haynes Bros.' Martin 1, 26-23-12, dr 2440 ft.

CADDO PARISH — Triangle Drilling Co.'s Hardy 1, 18-19-16, set 8-inch cas 1726 ft, tested dry show gas 1 ft sand 1727 ft, dr 1825 ft. C. W. Robinson's Wilson 1, 2-15-16, tested dry 2149-61 ft, sr td 2300 ft. I. N. Pharris' Oden 1, 19-19-14, set 6⅝-inch cas 2379 ft, td 2409 ft. R. W. Norton's Hill 1, 33-23-16, sd wo 4496 ft. Magnolia Pet. Co.'s Swann & Davis 1, 16-21-14, dr 1140 ft. L. B. Mawk's Swann Bros. 1, 23-21-14, sd for fuel 475 ft.

CLAIBORNE PARISH — El Dorado Chief Oil Co.'s Simmons 1, 27-20-7w, sd wo in bldrs & shale 2240 ft. Leue Oil Co.'s Taylor 1, 16-22-6w, sp set 12¼-inch cas 200 ft, dr shale 2300 ft.

CONCORDIA PARISH—Joe Marr et al's Maxwell 1, 35-3-8e, claim oil sand sd wo td 1692 ft.

DE SOTO PARISH — Benson O&G Co.'s Harris 1, 6-10-13, set 6⅝-inc hcas 3070 ft, sd wo 3650 ft. R. O. Roy's Farmer B-1, 8-13-13, dk. Lee 1, 33-14-15, rig up; R. A. Nelson 1, 36-15-13, dk. Ark. Fuel Oil Co.'s Scott 1, 32-14-13, sp dr 450 ft. Benedum & Trees' Johnson 1, 7-11-13, tested 2,400,000 ft gas through dr 2943-48 ft wo.

FRANKLIN PARISH—Evansville Inv. Co.'s Welsh 1, 2-14-8e, dr shale 3620 ft. Franklin O&G Co.'s O'Brien 1, 7-15-9e, dr 2727 ft. Davis et al's Moore 1, 12-11-6e, sd 1430 ft.

NATCHITOCHES PARISH — S. D. McDaniels' Clark-Morse 1, 23-5-6w, sd 2436 ft. Robeline O&G Co.'s Winn 1, 7-8-9w, sd in rock 1635 ft.

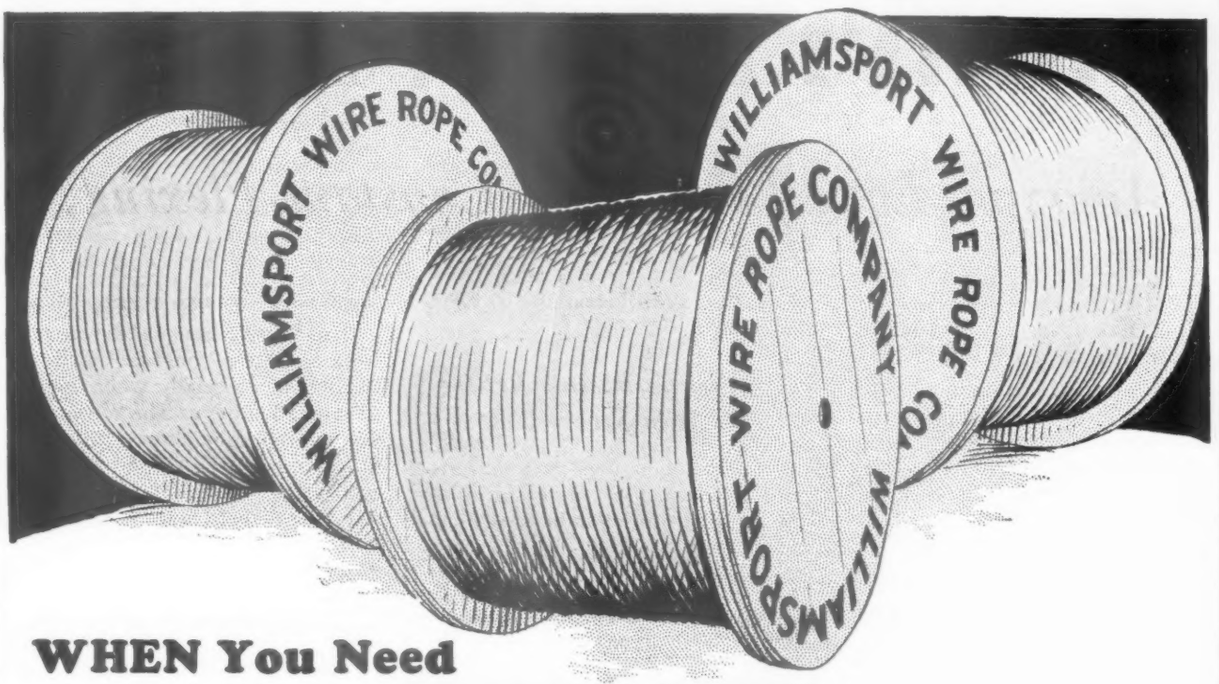
OUACHITA PARISH—J. L. Bullock, Tr.'s, West Va. 1, 25-18-5e, sd 2700 ft.

RAPIDES PARISH—Ayers Bros.' Wicklipp 1, 9-5n-2w, sd 2650 ft.

RED RIVER PARISH — W. D. Ball's Krumbholz 1, 32-14-10, did not make ds test 5 ft sand wo 1701 ft.

RICHLAND PARISH—Richland O&G Co.'s Singletary 1, 20-18-7e, set 9-inch cas 970 ft. Austin & McDonald's Millsaps 2, 17-17-6e, sd 2697 ft; Millsaps 3, 16-17-6e, sd 2477 ft; Millsaps 4, 16-17-6e, lcn; Millsaps 5, 8-17-6e, dk; Hunt 1, 13-17-5e, dk. W. C. Feazell's Landrum 1, 6-16-7e, dk. Shreveport Contractors' Buie 1, 17-15-7e, sd in black shale 2527 ft. International Gas Prod. Co.'s Lagrone 1, 7-16-7e, lcn.

SABINE PARISH—J. C. McDaniels' Darby 1, 6-8-12, dk pat. Sabine O&G Co.'s Anderson 1, 19-8-12, shot formation swabbed show oil wo td 2603 ft. Benedum & Trees' Bowman-Hicks A-2, 3-7-12, set 8¼-inch cas 3490 ft, 200 ft oil in hole wo td 2725 ft; Bowman-Hicks 3, 34-8-12, set 6⅝-inch cas 2339 ft, made 50 bbls oil head with dr in with CT, now bailing 75 bbls oil day, td 2363 ft; Bowman-Hicks 4, 34-8-12, rig up; Bowman-Hicks 5, 34-8-12, set 8¼-nich cas 2355 ft, changing to heavy rig, sd td 2675 ft; Bowman-Hicks 6, 33-8-12, topped chalk 2512 ft, set 6⅝-inch cas 2502 ft; Bowman-Hicks 7, 4-7-12, topped chalk 2560 ft, set 6⅝ in cas 2550 ft td 2572 ft; Sabine Lbr. Co. 1, 34-8-12, set 8¼ in cas 2340 ft made 70 bbl head oil while bailing td 2391 ft; Bowman-Hicks, 8, 18-7-13, dk. Peavy-Wilson Lbr. Co. 1, 21-6-13, dk. R. L. Gay, Tr's Bowman-Hicks 7, 14-7-14 dr 2000 ft; Bowman-Hicks 8, 18-7-13 dk; Sabine Lbr. Co. 4, 13-7-14, dr 1645 ft. A. H. Tarver's Long-Bell Lbr. Co. 1, 18-8-13, sd wo 3418 ft; Sabine State Bank 1, 27-8-12, topped chalk 2332 ft, set 8¼ in cas 2333 ft td 2680 ft; Olsan Bros.' Hooker 1, 27,8,12, topped chalk 2357 ft, set 6⅝ in cas 2333 ft, wosr td 2625 ft; Leone 1, 32,8,12, set 6⅝ in cas 2176 ft, pumping 80 bbls oil day td 2575 ft; Ferguson 1, 33,8,-12 ,dk. Ohio Oil Co.'s Bowman-Hicks 3, 33-8-12, set 6⅝ in cas 2400 ft, tested dry 2542 ft and 2572 ft dr 2610 ft; Bowman-Hicks 4, 35-8-12, set 6⅝ in cas 2265 ft, HFO wosh td 2372 ft. Bridges-Clark Oil Co.'s Gay 1, 3-9-12, fsh liner td 3276 ft; Cook 1, 3-9-12 rig up; Lion O. R. Co.'s and D. M. Lide's Sabine Lbr.



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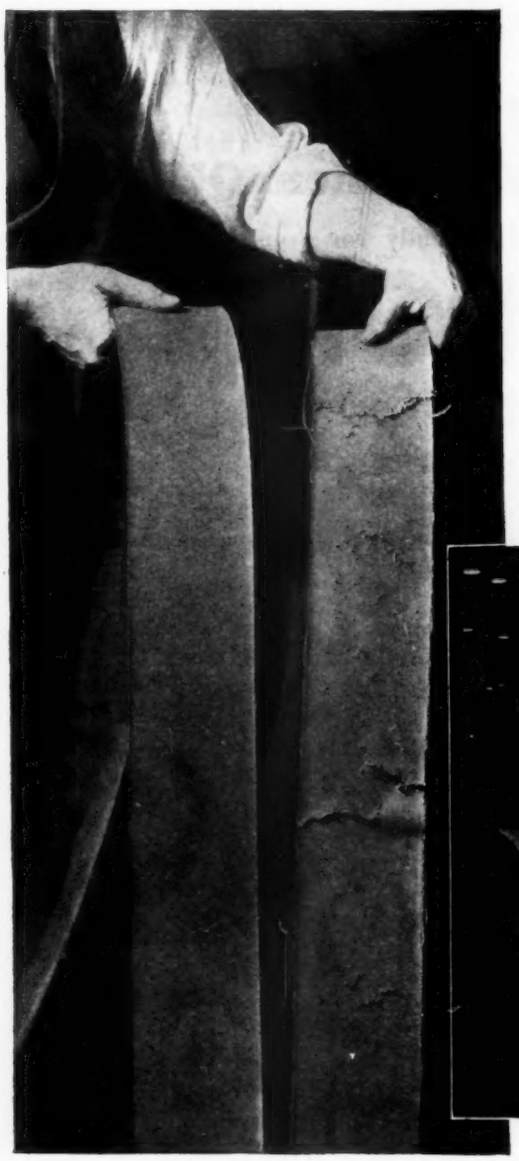
It is a rubber compound with qualities which can be demonstrated best by its phenomenal performance in industrial service. No rubber ever developed has its power of quick recovery, its ability to stand constant flexing, still retaining its lightning elasticity.

Power-transmission Belting Its Most Severe Test

Instances are on record where transmission belts made of Highflex rubber have outworn all other belts—including *leather*—by two or three to one!

This is one of its most severe tests, because of the constant strain and distortion, especially when running over small pulleys. The accompanying photographs show results of a recent test in the Goodrich "industrial proving ground." A Goodrich "Highflex" belt was connected by



(LEFT)—*Photo shows results of a test of Goodrich Highflex belting with a widely used rubberized belt, equal in price, appearance, size, number of plies and other general specifications, to Goodrich Highflex. Both sections of belting were made into* ONE BELT, *joined by metal fasteners. It was run over 4-inch crowned pulleys at a tension of 20* POUNDS PER INCH PER PLY, TOTAL *640* POUNDS, *at a speed to give 67 flexures per minute. After 425 hours of continuous running, the entire outer ply of the———— belt was covered with ruptures; 20 of these were more than an inch in length, many extending the full width of the belt. Ply separation had developed at all breaks. The Goodrich Highflex belt was separated for 2½ inches adjoining one of the heavy fasteners.* WITH THIS EXCEPTION IT WAS IN PERFECT CONDITION! *Full details are available to users of belting on request.*

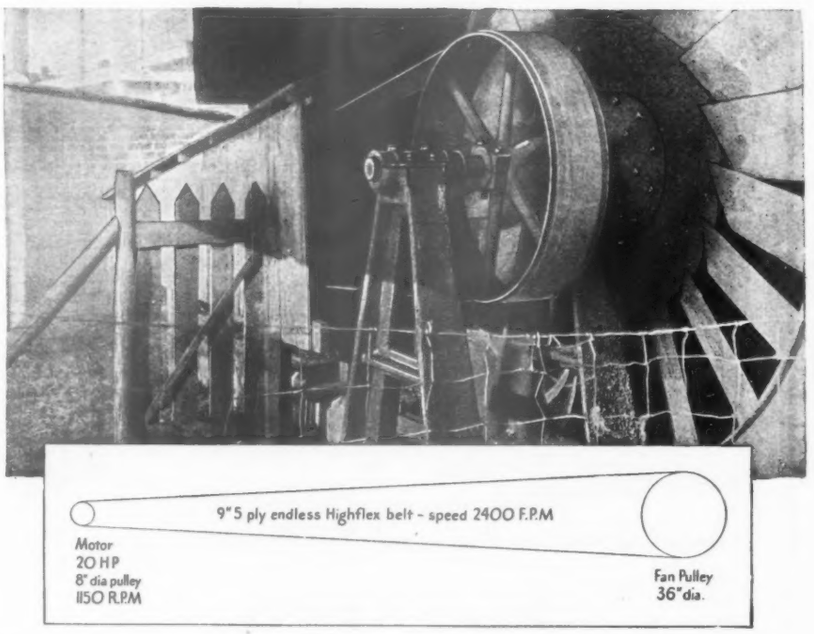
(BELOW)—*This photograph made just before completing the test described above shows section of the Goodrich "industrial proving ground," a unit of the Goodrich laboratories, where rubber products are put to tests many times more grueling than they receive in actual service. In the foreground is shown part of the dynamometer on which the test described above was made. Photo shows the size of the pulleys and the method of testing.*

a Goodrich Invention . .

fasteners with another belt of a commonly used make and one of the highest priced on the market, made in imitation of the foldless construction adopted by Goodrich some years ago. Details of the test are described below.

In belt manufacture Highflex rubber permits the use of duck having a harder, stronger weave than ever before. The flexibility of the rubber, combined with the Goodrich Highflex foldless construction, gives a flexibility in the belt itself which was impossible heretofore.

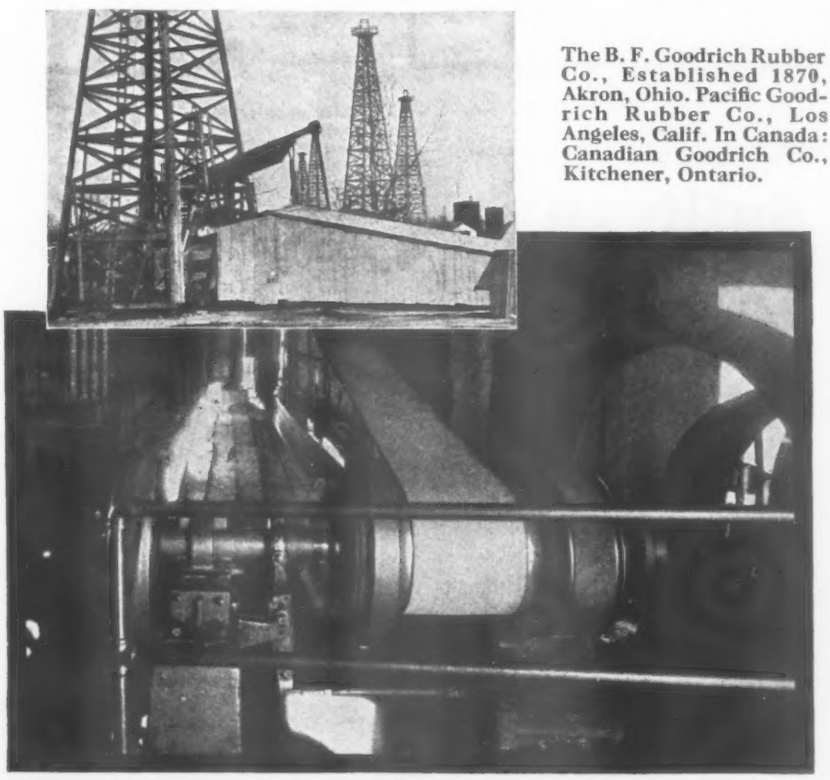
Goodrich Highflex is the first transmission belting to supplant leather in small-pulley work. In some industries where use of leather is traditional, because of the many small pulleys, Goodrich Highflex is already coming into wide use—*and is reducing belting costs by almost half!*



(ABOVE)—*A Goodrich Highflex belt operating a fan at the mine of the Thomas Love Coal & Coke Co., Fairmont, West Virginia. W. W. McCune, manager, writes:*

"We have been astonished by the performance of the Goodrich Highflex Belt. It is by far the best belt we have ever had at the mine.

"It was installed December 7, 1927—more than two years ago and still looks like new. It has been operated continuously 24 HOURS A DAY. Not only has the belt shown remarkable lasting quality, but we have never had any trouble from stretch, even in hot weather. It is exposed to all sorts of weather conditions as is shown in the photograph, the belt often being wet from rain and snow."



The B. F. Goodrich Rubber Co., Established 1870, Akron, Ohio. Pacific Goodrich Rubber Co., Los Angeles, Calif. In Canada: Canadian Goodrich Co., Kitchener, Ontario.

(LEFT)—*"THE ONLY BELT EVER USED ON THIS WELL THAT HAS GIVEN SATISFACTORY SERVICE," says the superintendent at this well of a large oil company in Texas. This Goodrich Highflex belt was installed June 17, 1929. On February 27 the superintendent stated that it still looked good for ten months more while the BEST PREVIOUS RECORD BY ANY BELT WAS THREE MONTHS. It has never been cut on account of stretch.*

The belt is 14", 7 ply, 105 feet long. Band wheel 14 feet diameter, 21 strokes per minute, 72-inch stroke, 2¼-inch tubing, ¾-inch sucker rods. Depth of well 2,950 feet. Weight of well 19,700 pounds. Sixteen-inch diameter clutch pulley on 35 h.p. four-cycle Superior gas engine. This well pumps 24 hours per day, producing 745 barrels of fluid, 96% water.

HIGHFLEX BELTING—

Another B. F. Goodrich *Product*

32,000 rubber articles, representing more than a thousand distinct rubber products—Goodrich Silvertowns
Zippers · Rubber Footwear · Drug Sundries · Soles · Heels · Hose · Belting · Packing · Molded Goods

A time saver on any lease

THE APPLEMAN GUMBO BIT is designed to fit the needs of those efficient operators who appreciate the value of hours or days saved in drilling a well. On any lease where the APPLEMAN BIT is used you will find that the unusual speed of this bit is saving money every day for the oil man.

The remarkable speed of this bit has made for it a reputation throughout the ranks of oil operators and drillers that singles it out as an outstanding leader where *time saved means dollars saved.*

Ask the man who uses them or write for complete information today.

B. K. APPLEMAN
BEAUMONT, TEXAS

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for deep tests or wildcats

Sullivan "60" is the new Diamond Drill for deep tests and wildcat drilling. It will drill large holes as well as small ones, rapidly—and take core wherever desired.

Makes Big Hole—Sets Big Casing

Sullivan "60" will make open hole to 6000 feet, or set 5500 feet of 3-in. casing, 5000 of 4¾-in., 4000 of 6⅝-in., 2500 of 8⅝-in., or 1000 of 11¾-in.

Straight True Holes

Hydraulic 18-in. feed, and three drilling speeds, give you sensitive control of the bit. And you can be sure of drilling straight true holes.

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In addition to the diamond bit, Sullivan "60" uses any equipment used by the rotary drill, including a Kelly.

Handles Highest Pressures

Sullivan "60" will complete holes against the highest gas pressures yet encountered.

Separate hoist and pumping outfit are supplied. Sullivan "60" with equipment for deep holes, is much lighter than other equipment—and saves freight and transportation.

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SULLIVAN MACHINERY COMPANY

713 Wrigley Building, Chicago, U. S. A.

GEO. E. FAILING, *Agent,* Garber, Okla.

Co. 2, 31-8-12, set 6⅝ in cas 2182 ft, pumping 36 bbls oil day, td 22 24 ft; W. G. Gray's Nulden 1, 6-7-12, set 6⅝ in cas 2197, dr 2340 ft. Standard Oil Co. of La's Nunn 1, 32-8,12, set 6⅝ cas 2158 ft, tested dry 2339 ft, dr hard chalk 2352 ft. Ruston Drilling Co.'s Bowman-Hicks 1, 4-7-12, set 6⅝ in cas 2411 ft, oil in hole TA 2640 ft; Bowman-Hicks A-1, 35-8-12, set 6⅝ in cas 2330 ft, tested dry 2538 ft, dr 2600 ft; Bowman-Hicks A-2, 35-8-12, lcn abn will not drill; Bowman-Hicks B-1, 24-7-14, rig up. Warner Quinlan Co.'s Sabine Lbr .Co. 2, 34-8-12, lcn. Stovall Drilling Co.'s Lefkowitz 1, 33-8-12, set 6⅝ in cas 2328 ft, sd wo 2699 ft. Le Grande et al's Haley 1, 6-7-12, set 6⅝ in cas 2130 ft, sd 2576 ft. Giaque 1, 6-7-12, lcn. D. H. Reddick, Tr's Scretchfield 1, 16-9-12, dr 2580 ft. H. S. Autrey's Long-Bell Lbr. Co. 1, 35-8-14, sp dr rock 888 ft. P. M. Bridges' McWilliams 1, 30-10-11, set 6⅝ in cas 3116 ft, tested dry at 3227 ft wo. Paramount O&G Co.'s Woolums 1, 11-6-12, dr 820 ft. Zeke Lohman's Wyatt Lbr. Co. 1, 18-4-11, dk. Pelican Nat Gas Co.'s La. Long Leaf 1, 4-7-11, dr 1730 ft; Sabine Lbr. Co. 1, 1-7-12, top mark 2292 ft wo td 2303 ft. Ray-Dawes Drilling Co.'s Mansfield Hdw. Lbr. Co. 1, 36-8-13, set 6⅝ in cas 2115 ft, tested dry, show oil 2202 ft arr deepen. Ark. Fuel Oil Co.'s Nunn 1, 32-8-12, set 6⅝ in cas 2160 ft, tested dry 2350 and 2520 ft, dr deeper thru liner. Henshaw et al's Sabine A-1, 31-8-12, set 6⅝ cas 2177 ft; Sabine A-2, 31-8-12, set 6⅝ 2175 ft, sw abn td 265-1 ft; Sabine A-3, 31-8-12, lcn; Sabine B-1, 31-8-12, set 6⅝ in cas 2168 ft, dr 2330 ft. C. L. Jett, Tr's Jones 1, 31-8-12, dr 810 ft. O'Brien Bros.' Colquitt 1, 32-8-12, dry aban td 2575 ft. E. C. Simmons' Bolin 1, 31-8-12, set 6⅝ in cas 2140 ft ,changing to rotary rig td 2160 ft; Leach 1, 31-8-12, lcn; Anderson 1, 31-8-12, Dooley & Howard's Williams 1, 31-8-12, lcn. Airligt Oil Co.'s & Root Ref. Co.'s Leone 1, 32-8-12, set 6⅝ in cas 2230 ft, td 2248 ft. Broderick & Calvert's Sabine 1, 31,8-12, dk pat. G. H. Broderick's Sabine 1 (formerly Bolin 1), 31-8-12, set 6⅝ in cas 2184 ft. Joe Burnham et al's Bolin 1, 31-8-12, set 6⅝ in cas 2175 ft, tested dry 2178 ft, arr deepen. David & Tyson's Neville & Roberts 1, 31-8-12, arr set cas 2173 ft. Dixie Oil Co.'s Nunn 1, 32-8-12, set 6⅝ cas 2275 ft, cored chalk rock showing oil, arr test 2497 ft. Floyd Oil Corp's Barnett 1, 31-8-12, set 6⅝ in cas 2185 ft. Glassell & Merren's Thomas 1, 31-8-12, lost cas seat, arr reset cas 2212 ft. Hebert Oil Co.'s Noble 1, 31-8-12, dk. Sabine Lbr. Co.'s Fee 1, 31-8-12, dr 2160 ft. W. S. Smith et al's Colquitt 1, 31-8-12, dk; Williams 1, 31-8-12, rig up; Henderson 1, 31-8-12, dk. F. M. Hood's Winston 1, 31-8-12, sp dr 700 ft. Bahan & Ryan's Meshell 1, 32-8-12, rig up. J. R. Crawford's Pearce 1, 32-8-12, rig up. Philp Bros.' Dow 1, 31-8-12, sp dr 200 ft. Longoria et al's Belton 1, 31-9-13, dk pat. Dudney et al's Pearson 1, 31-8-12 ,lcn. Ohio Oil Co.'s Bowman-Hicks 1 Acct 2, 6-7-13, dk.

TENSAS PARISH—Willis et al's Curry 1, 39-11-12e, sd 650 ft.

UNION PARISH—Fred Stovall's Stovall 1, 32-23-4e, moved rig high water.

WEBSTER PARISH—J. J. Kean's Monzingo 1, 27-18-8e, dr 850 ft. Pat Hudson's Gardner 1, 1-22-11, dk. B. L. Slack 1, 36-23-11, set 6 in cas 2680 ft, 4 ft sand 1500 ft, fluid in hole 60 per ct sw wosr td 2741 ft. E. W. Bateman's Womble 3, 1-22-11, set 6 in cas 2690 ft, wosr td 2704 ft. Magnolia Pet. Co.'s Scroggins 3, 1-22-11, sp set 15½ in cas 303 ft. Mount Vernon O&G Co.'s Pardee 3, 3-22-11, dr 900 ft. Phillips Pet. Co.'s Bolinger A-1, 30-23-11, wosr td 3247 ft. Merritt & Merritt's Boucher 1, 17-23-11, fsh ds 2811 ft. Leggett et al's Slack 1, 36-23-11, dr 730 ft.

WEST CARROLL PARISH—Palmer Corp's Marston A-1, 11-19-10e, set 5 in cas 2592 ft, coring sand and shale 2688 ft. H. L. Hunt's Brown 1, 4-21-11e, plugged back to 1000 ft, dr 1016 ft td 2116 ft.

MOUNTAIN STATES

UTAH

BOX ELDER—Utah-Pennsylvania Oil Co.'s Penrose 1, nw 3-10n-4w, dr 3415 ft. Lenora Mining & Milling Co.'s Swaboda 1, nw 9-8n-7w, sd 2755 ft.

CARBON—St. Thomas Oil Co., 1-14s-9e, fsg 2300 ft. Price River Pet. Co.'s Price 1, ne 16-14s-10e, dr at 3100 ft.

GRAND—Crescent Oil Syn.'s McCarthy 1, sw

27-21s-19e, dr 2200 ft. Utah Southern Oil Co.'s State 1, 26-21s-33e, dr 1100 ft. Cisco Springs Syn.'s Moss 1, sw 9-20s-23e, fsg bit at 2140 ft.

KANE—Midwest Ref. Co.'s Parry 1, se 14-39s-1w, cem 10¾-inch 2685 ft. Beaver Valley Oil Co.'s Blackrock 1, ne 20-25s-9w, fsg pipe at 3500 ft. Beaver Valley's Blackrock 2, se 19-25s-9w, sd 600 ft.

SAN JUAN—Boulder Knoll Oil Co.'s Boulder Knoll 1, nw 17-34s-25e, stand 2640 ft. Continental's Boundary Butte 1, se 22-43-22, set casing 5612 ft.

UINTAH—Home Oil Co.'s Spahr 1, sw 8-5s-21e, sd 1165 ft. Maud Ellen Oil Co.'s Neal 1, se 28-3s-21e, dr 1850 ft. Western Venture Corp.'s Krumveida 1, se 6-5s-21e, sd 1515 ft.

UTAH—Diamond Oil Co., 1, nw 16-8s-5e, sd 1700 ft.

IDAHO

BANNOCK—Norton Bros. et al's Marsh Valley 2, Lot 5, sec 19-10s-37e, td 2650 ft.

CLARK—Monida Oil Co.'s Beaver Dome 1, nw 32-14n-36e, sd at 1140 ft.

POWER—Gem State Pet. Co.'s Arbon Valley 1, nw 2-11s-33e, sd 3800 ft.

TETON—Grand Teton Oil Co.'s Horse-shoe 1, se 33-5n-44e, sd 2140 ft. Teton Land & Leasing Co.'s Bevan 3, se 28-5n-44e, dr 1641 ft.

NEW MEXICO

CHAVES—Warman Oil Trust's Blackdome 1, ne 27-13s-24e, dr 1195 ft. Cactus Dev. Co.'s Sullivan 1, se 14-10s-26e, dr 2090 ft.

DEBACA—Matador Oil Co.'s Wood 1, sw 6-4n-20e, wtg for pipe at 2685 ft.

EDDY—Van Horn et al, se 18-19s-26e, sidetr 1660 ft. R. D. Compton's State 1, nw 2-20s-25e, dr 1335 ft. Henderson et al's Arnold 1, se 23-17s-30e, small well at 3675 ft. Henderson et al's Grier 1, nw 21-16s-31e, drilling at 2385 ft. Lockhart et al's Beeson 2, ne 28-17-30e, abn 3565 ft. Lockhart et al's Parke 3, se 15-17s-30e, location. Leonard & Levers' State 2, 21-17s-29e, 9½ M at 2283 ft. Pueblo Oil Co.'s Russell 5, nw 18-17s-31e, dr 420 ft.

GUADALUPE — Los Angeles-Hollywood Synd.'s McMullen 1, sw 24-5n-16e, rig.

LEA—Shell Pet. Corp.'s State 1, ne 32-18s-38e, dr 1930 ft; State 2, nw 19-18s-38e, cas 218 ft. Empire's Lindley 2, se 14-25s-36e, show gas and water at 3375 ft. Continental's Myers 1, nw 28-22s-36e, sd 3595 ft. Walker et al's Terry 2, se 10-19s-38e, spudded and sd. Humble O. & R. Co.'s Lindley 3A, sw 13-25s-36e, spd 15 ft. Bordages et al's Hughes 1, 27-19s-38e, pipe trouble 4012 ft. Morton et al's State 1, nw 32-11s-38e, 4405 ft. Barnsdall Corp., 1, se 28-16s-38e, plugged 5160 ft. Cranfill & Reynolds' State 1-C, sw 16-23s-36e, dr 3655 ft. Fisher & Lowrie's State 1, nw 11-18s-36e, dr 3615 ft. Texas-Pacific's State 4, 21-23s-36e, ready to spud. Walker et al's Terry 2, se 10-19s-38e, spudded and sd. Texas-Pacific's State 1-G, 24-18s-37e, ready to spud. Cranfill & Reynolds' State 1-D, Lot 6, sec 3-21s-33e, dr 3700 ft. Hobbs High Oil Co.'s State 1, se 35-18s-38e, standardizing 276 ft. Ohio Oil Co.'s Northrop 1, se 32-18s-39e, fsg 2750 ft. Ohio's McDonald 1, 15-29s-36e, dr 200 ft. Maljamar O. & G. Corp.'s Baish 3, nw 21-17s-32e, dr 610 ft.

McKINLEY—J. W. Halsell's Santa Fe 1, 17-18s-9w, cas at 3200 ft. San Juan Coal & Oil Co., 1, se 21-18n-9w, sd 2205 ft. Williams et al's Santa Fe 1, se 19-19n-8w, wtg casing at 1900 ft. Cravens et al, 7-18n-9w, dr 575 ft.

RIO ARRIBA—Berringer et al's Hartman 1, ne 8-29n-7w, preparing to resume at 825 ft. San Juan Pet. Co.'s Government 1, sw 14-30n-7w, sd 270 ft.

SAN JUAN—Dorothy Oil Co.'s Terwilliger 2, 29-30-9w, 1215 ft. Southern Union Gas Co.'s Day 1, se 20-28n-10w, sd 1455 ft. Blackrock Oil Co.'s Blackrock 1, se 11-25n-13w, wtg on extension permit with td 1550 ft. Greathouse et al's Roderick 1, se 11-22s-14w, sd 1000 ft. Childers Dr. & Pr. Co.'s Westwater 2, nw 24-31n-16w, sd 2525 ft. Reserve Oil Co.'s Shaffer 2, ne 1-21n-14w, sd 780 ft. H. L. Williams' Bowman 1, ne 30-30n-15w, dr 2460 ft.

SANDOVAL — Virginia-Mex O. & G. Co.'s Marion 1, se 23-20n-2w, fsg at 1150 ft.

SAN MIGUEL — Pioneer O. & G. Co.'s Thunderbird 1, nw 14-15n-16e, dr 2315 ft. Starr Oil Co.'s Adams 1, ne 25-17-17e, 6⅝-inch at 3271 ft. Cibola Pet. Co.'s Crown 1, se 9-13n-14e, ready to resume 320 ft. Hershfield Dev. Co.'s Cabra Springs 1, ne 21-12n-22e, stand 730 ft. Benedict et al's Wilson 2, nw 25-17n-16e, ready to spud.

SOCORRO—Lockhart & Co.'s Stackhouse 1, 14-3s-6e, dr 2275 ft.

TORRANCE—Williams et al's Staplin 1, ne 16-8n-10e, dr 2035 ft. J. B. Witt O. & G. Co.'s Kutchem 1, 12-7s-7e, water trouble at 241 ft.

VALENCIA—Rio Puerco Oil Co.'s N. M.-Ariz. Land Co. 2, ne 13-6n-2w, wtg for pipe 3145 ft. Acme Oil Co.'s N. M.-Ariz. Land Co. 1, 26-6-3, dr 4660 ft. Harlan et al's Harlan 1, 5-6n-2e, sd 4107 ft.

COLORADO

ADAMS—N. M. Slatt's Hill 1, se 27-35-64w, dr 1235 ft.

ARAPAHOE—McDebb Dr. Co.'s Fitzsimmons 1, 7-45-66, sidetr cas 4935 ft.

ARCHULETA — Outwest Investment Co.'s Fitzhugh 1, sw 34-33n-1e, ready to spud.

BENT—Continental's Pipe Springs 1, se 27-27-49, dr 5765 ft.

BOULDER—Reliance Oil Co.'s Erickson 1, nw 33-2n-70w, dr 3085 ft.

DOLORES—Transcontinental's Glade 1, nw 30-41n-16w, sd 5900 ft.

ELBERT—Belmont Oil Co.'s Maher 1, se 4-6s-59w, standardizing 3720 ft.

FREMONT—Westerville Oil Co.'s State 1, nw 16-18-69, sd 1214 ft. Continental's Harding 2, sw 21-18-70, dr 2500 ft. Hammond & Roscoe's Beltrame 1, se 1-19s-70, sd 1800 ft.

JACKSON—Midwest's Rich 21X, nw 9-6n-80w, sd for winter 3381 ft. P. & R.'s Hendershot 1, ne 2-6n-81, sd for winter 3610 ft.

JEFFERSON — Ruby Hill O. & G. Co.'s Braden 1, se 24-4s-69w, ur to 3578 ft.

HUERFANO — Parker Club and Kinney-Coastal's Fee 1, se 4-28s-68w, fsg 4116 ft. Elliot et al's Abeyta 1, nw 31-27s-65w, location.

LAS ANIMAS—Trinidad Dev. Co.'s Flontz 1, se 23-32-63, set 5 3/16-inch at 2700 ft, water trouble. American Helium Gas & Oil Co.'s Boling 1, sw 3-29-60, lost hole at 160 ft, and skidding rig.

LARIMER—Mosher et al's Reed 1, nw 28-4n-

B & B Line "spools pretty" on the cable tool rig of Magnolia Petroleum Company's Homsley No. 3, Earlsboro, Okla. Left: Jack Lee, Tool Dresser; Right: R. S. Stanley, Driller.

NR-696

"Just Naturally A Good Line"

Listen to R. S. Stanley, Driller, calling down Jack Lee, Tool Dresser, for saying they have good luck with their *B & B Cable Tool Drilling Lines:* "Good luck, your eye! It's just naturally a good *line.*"

***Naturally* it is. The wire is specially drawn and put through four very strict tests. It is laid up on machinery designed to impart to the rope that *springy* quality which makes drillers call it "the easiest handling line made—a mighty pretty spooling line that you can count on to drill ahead of the tools."**

Distributors in all fields handle B & B Patentsteel, Extra Strong Cast Steel and Cast Steel *Cable Tool* Drilling Lines, Sand and Pumping Lines, and invincible Yellow Strand Rotary Lines.

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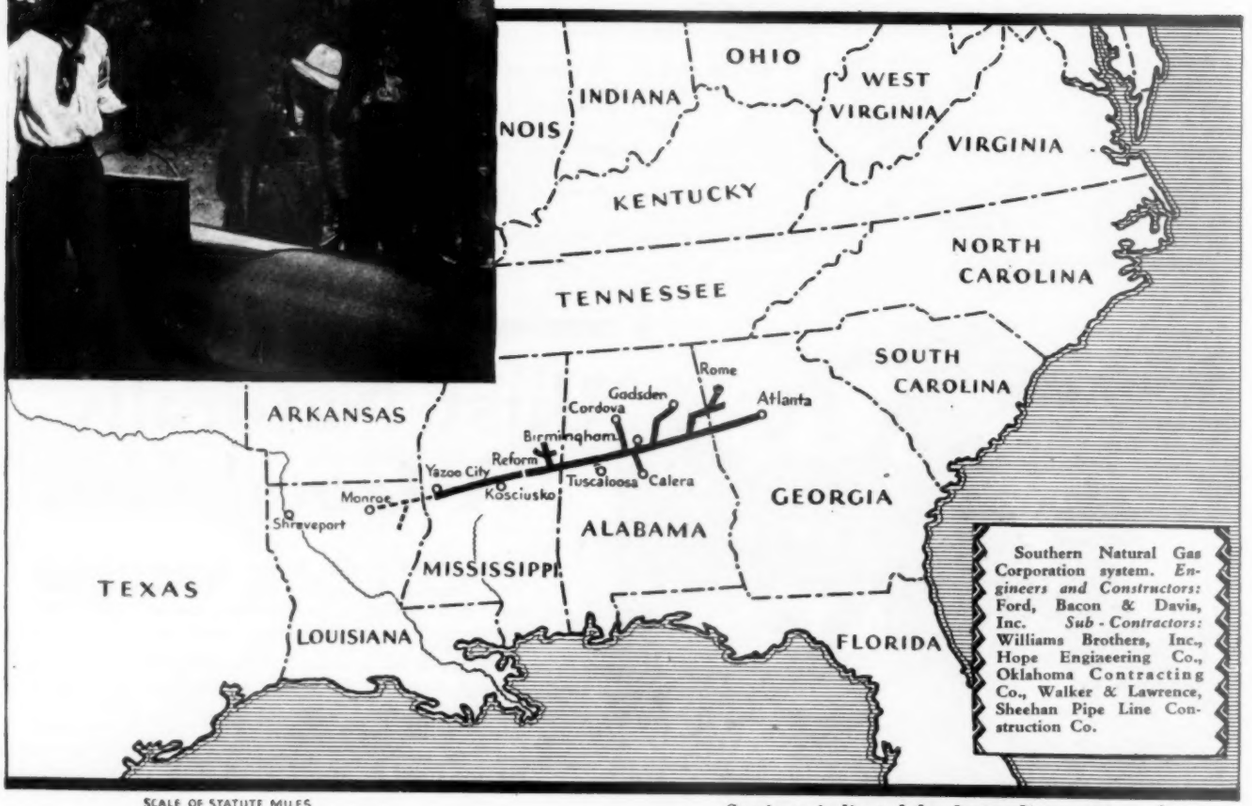
Barrett Specification — now

ANTI-CORROSION PRODUCTS

Sling method of applying Barrett Pipe Line Enamel on 22" gas line. A homogeneous coating which is hard, tough and highly resistant to all corrosive conditions.



Sections indicated by heavy line, protected with Barrett Anti-Corrosion Products.

THE Southern Natural Gas Corporation pipe line system now nearing completion, extends from a point near Monroe, La., to Atlanta, Ga., with feeders and branch lines serving adjacent territories. It crosses the Mississippi, Big Black, Sipsey, Warrior and other Rivers.

Passing through four Southern states, with their many soil and climatic conditions, dependable protection against virtually every kind of corrosive element was necessary to safeguard this large investment.

After a careful investigation the contract was awarded to The Barrett Company for a tonnage equivalent to more than 300 carloads of Barrett Anti-Corrosion Products.

protect a large portion of the Southern Natural Gas Corporation System

Southern Natural Gas Corporation system 22″ coupled line—Williams Bros., Inc., Contractors.

Barrett Anti-Corrosion Products include: ENAMELS—made with the finest grade of coal tar pitch and a flake type of internal reinforcement, exclusive with Barrett, which permits the use of a higher percentage of the Waterproofing Base. PRIMERS AND COLD APPLICATION PRODUCTS—utilizing the same base with suitable solvents. PIPE LINE FELTS—saturated with waterproofing used as a reinforcement to permit the use of the maximum amount of protective coatings.

Barrett Specifications are devised to provide the best methods of application, special products for unusual conditions, quantity surveys, and field inspection service. The reputation of such outstanding Barrett products as Barrett Specification Roofs, Tarvia and Barrett Underground Waterproofing for tunnels, dams, subways, etc., is your assurance that Barrett Anti-Corrosion Products will give you pipe line protection for years to come.

Bulletins on Barrett Anti-Corrosion Products are available and can be had for the asking.

Barrett Primer, Enamels and Coupler Compounds are shipped in light-weight steel drums with closed heads.

The Barrett Company

40 Rector St., New York

69w, bailer lost 3160 ft. Barrows et al's Barrows 1, se 7-11-68, sd 2310 ft. Continental's Scott 5, nw 6-9n-68w, dr 3465 ft. Deininger et al's Rembey 1, ne 35-4n-70w, to resume at 354 ft. Outwest Inc.'s Hertha 1, nw 21-4n-69w, running 8¼-inch casing at 2820 ft with 1,000,000 ft gas.

LAPLATA—McGarr Pet. Corp.'s Red Mesa 1, ne 27-33n-12w, 10- inch at 735 ft. Detroit Oil Assn.'s Olbert 1, se 9-35n-12w, dr 2386 ft.

LINCOLN—Kelly Oil Co.'s State 1, ne 36-14n-57w, sd 3350 to install new boiler.

MESA—Argo Oil Co.'s Hoel 1, ne 23-8s-104w, run 6¼-inch at 2725 ft.

MOFFAT—McLaughlin et al's Williams 1, 2-3-92, abn 4515 ft. Vermillion O. & G. Synd., 1, se 23-9n-100w, resuming at 842 ft. Texas Prod. Co.'s Berlin 1, ne 18-12n-100w, pump mud to kill gas 2337 ft. Texas Prod. Co.'s Knowlton 12, 33-5n-91w, rig. Midwest's Hannawalt 24, 4-6n-92w, dr out cem 1945 ft. Mtn. Fuel Supply, 25-12-101, dr 2050 ft, showing 1M gas.

MONTROSE—Uncomphagre O. & G. Co.'s Colorado 1, nw 27-50-10, resuming at 2031 ft.

MORGAN—Ind. Ter. Illum O'l Co.'s State 1, ne 16-1n-57w, spd.

PUEBLO—Beulah Dome Co.'s Hedland 1, sw 7-23-67w, sd 932 ft.

RIO BLANCO—Texas Production's Potter 1, se 30-2n-69w, coring 5890 ft. White Eagle's Fordson 1A, se 9-2s-96w, td 3300 ft, try so gas and caves.

ROUTT—Gillespie et al's Omholt 1, se 29-4n-87w, ready to spud. Ruby Hill O. & G. Co.'s State 2, nw 17-6n-86w, plugged at 2208 ft.

WELD—Platt Valley Pet. Corp.'s Patterson 1, se 24-6n-61w, dr 5050 ft.

WASHINGTON—Middlemist Oil Co.'s Middlemist 1, se 14-4s-56w, set 15½-inch casing at 1030 ft.

YUMA—Phillips Pet.'s Andrews 1, nw 3-2s-42w, fsg 5070 ft. Major Pet. Co.'s Black Wolf 1A, 7-2s-43w, stand 1535 ft.

WYOMING

BIG HORN—P. & R.'s Gov't 3, 24-56-98, sd 4183 ft. Westland Oil, Inc., 24-54-95 sd 360 ft. Wisconsin Holdings, 4-55-97, sd 665 ft. Yellowstone Pet. Co., 7-57-97, dr 2780 ft.

CARBON—P. & R., 2-19-88, sd 4562 ft. C. E. Bivens et al's Baggs 1, 35-13-92, to resume at 2200 ft.

CONVERSE—Pioneer Oil Co., 5-31-70, to resume 3300 ft.

FREMONT—Texas Prod. Co.'s State 1, 36-34-95, run 8¼-inch at 3145 ft.

HOT SPRINGS—Midwest, 8 Weeks, 6-44-98, resuming at 1052 ft. Ohio Oil Co.'s Smith 1, 8-46-99, dr 3955 ft. Gebo Consolidated 1, se 23-44-95, sd 1245 ft. C. F. Robertson et al, se 17-43-92, sd 450 ft.

JOHNSON—United Oil Co., 7-47-82, sd 360 ft. R. C. Tarrant, 4-43-82, sd 600 ft. Dome Synd., 3, 4-43-82w, sd 720 ft.

LINCOLN—Midwest's Grey's River, 25-37-117, sd 1731 ft. Midwest's Waterfall 1, 35-22-115, sd 3510 ft. Mtn. Oil Corp., 36-25-115, sd 100 ft.

PARK—P. & R.'s Pitchfork 1, 14-48-102, sd 1400 ft. Henderson Prod. Co., 31-58-99, sd 3000 ft. Resolute Oil Co., 17-27-101, resumed 4280 ft. Cody Pet. Corp.'s Danker 1, se 22-57-98, sd 2697 ft.

SWEETWATER—Mtn. Fuel Supply's Tucker 1, 18-13-99, sd 2900 ft. Mtn. Fuel Supply's Cappers 1, 2-19-104, sd 3200 ft. Mtn. Fuel Supply's U. P. 1, 13-19-104, sd 3100 ft. Vermillion Oil Co., 1, sw 16-12-99, dr 1800 ft.

UNITA—California Co.'s U. P. 1, 7-17n-119, dr 4730 ft.

WESTON—Gose Synd., 28-47-65, sd 400 ft.

MONTANA

BIG HORN — Montana Production Co.'s Lynde 2, 21-6s-35e, sd 3056 ft.

CARBON—Atlantic Oil Co., 20-7s-24e, sd in Madison 1840 ft.

CARTER—Carter & Co., 1, nw 11-2n-58e, plugg back to 2030 ft to test. Montesota Oil & Dev. Co., 1, se 7-8n-58w, set 5 3/16-inch at 930 ft. Poss Pet. Corp., nw 7-8n-57w, sd 2505 ft.

CASCADE—Piegan et al, 36-20n-3w, co 2115 ft. Eden Oil Co., 1, sw 27-18n-4e, sd 1326 ft.

CUSTER—Montana Belle Oil Co., 1, ne 28-8n-45e, sd 4562 ft.

DANIEL—Whitetail Oil Synd., 1, nw 10-36n-50e, sd 1467 ft.

FERGUS—Melton Corp., sw 24-21n-17e, set string td 2700 ft, prep to resume.

GALLATIN—California Co.'s Ringling 1, se 35-5n-7e, dr 3970 ft.

GARFIELD—Montana Corp.'s State 1, ne 36-16n-38e, reaming, td 4005 ft.

GLACIER—Kootenai O. & G. Co., 1, 13-35n-6w, prep to resume at 250 ft. Fulton Pet. Co.'s Hannah 1, ne 28-36n-12w, rig up. Rim Rock Oil Co.'s Brown 1, se 29-35n-5, rig up.

LIBERTY—Square Deal Oil Co.'s Federal Land Bank 1, 1-32n-7e, try ur pipe for wso, td 3470 ft. Thompson's Thompson 1, sw 7-34n-4e, sd 2314 ft. Northland Oil & Gas Co.'s Yurman 1, 35-33n-6e, sd 1030 ft. Sunburst O. & R. Co.'s Walford 1, ne 18-36-60, rigging.

MUSSELSHELL — Minnesota-Flatwillow's Ivanhoe Dome 1, 7-11-31, spd and sd.

PETROLEUM—Minnesota-Flatwillow, 2, sw 5-12n-25e, to dd from 1558 ft. Oregon-Flatwillow Oil Co., 1, 3-13n-26e, to resume 200 ft.

PONDERA—Hiland-Van Daele's Kendall 1, ne 35-30n-3w, sd 4215 ft. Miller Bros.' Bruins 1, nw 17-28n-1w, rig up.

ROSEBUD—Prairie O. & G. Co.'s N. P. 1, 9-10n-39e, sd 2310 ft. Prairie's N. P. 3, 26-10n-30e, reinforcing rig corners, td 2410 ft. Prairie's N. P. 4, 28-10n-38e, sd 65 ft.

SHERIDAN—Sheyene O&G Co., nw 15-36n-53e, to resume 1400 ft.

SWEETGRASS—Shoshone Consolidated's N. P. 1, nw 23-2n-15e, sd 5805 ft.

TETON—Andover Oil Co.'s Carlson 1, ne 5-24n-4w, sd 150 ft. Newman et al's Fitzgerald 1, 26-32n-1w, rig up. Rocky Mtn. O. & G. Co.'s Salmond 1, ne 4-23n-8w, stand 1160 ft. Earl Oil Corp., 1, se 22-22n-82, sd 660 ft.

TOOLE—Monalta Oil Co.'s Buckley 1, se 1-37n-4w, 1500 ft oil in hole at 2485 ft. Monalta Oil Co.'s Buckley 2, sw 1-37n-4w, rig. Anaconda Pet. Co.'s Barthelote 1, ne 19-36n-2w, sd 1635 ft. Mahan et al's Lee 1, 10-31n-1w, sd 2264 ft. Roxana Drg. Co.'s Toole 1, 22-36n-1e, sd 1700 ft. John Thomas et al's Buckley 1, ne 1-37n-4w, run cas at 1400 ft. Black Gold Pet. Co.'s Syrs 1, sw 30-36-28, run cas 1655 ft. F & F Oil Co.'s Swenson 1, se 12-33-1e, run cas 750 ft. Mid-Continent O. & R. Co.'s Farbo 2, ne 2-37-4w, try ur 10-inch for lost bit, 1900 ft.

NORTHERN CALIFORNIA

KERN COUNTY

BELRIDGE—J. H. Kennedy's 1, 5-29-21, dr brown shale 1607 ft. Rio Grande's 1, 18-28-22, will deepen from 3680 ft. K .C. Wallace's No. 1, 32-29-21, dr shale 2717 ft.

BUTTONWILLOW—General Pet.'s Morris 1, 6-28-23, dr shale 1655 ft. Milham Exploration's Kern 6, 8-28-23, fsh for soclet 4945 ft; Kern 7, rigged up; Kern 8, rigged up; Kern 9, rigged up; Kern 10, rigged up. Nordon Exploration Co.'s Salisbury 1, 7-29-24, new lcn.

EDISON—F. M. Sayre's No. 1, 5-30-29, fsh 4222 ft. Shell's No. 1, 33-29-29, dr hard sand 3550 ft.

GOULD HILLS—Bomke and Ball's Larson

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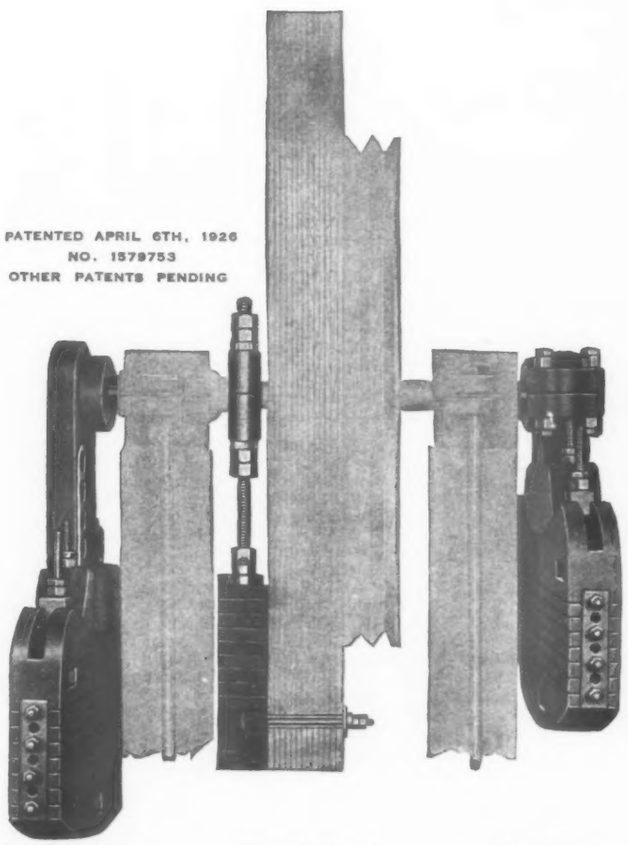

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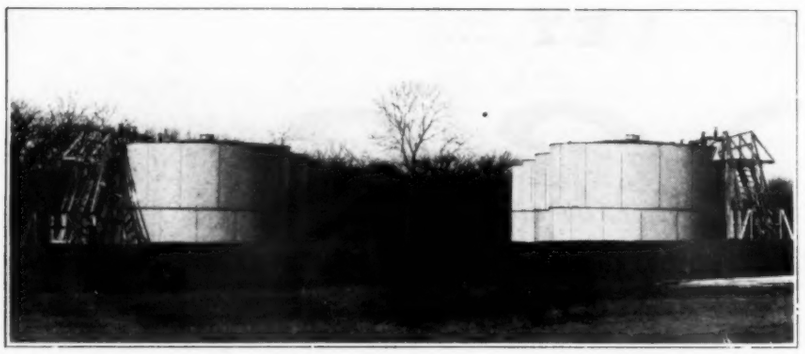

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1, 12-29-30, dr hard shale 2972 ft. Casa Mira Oil Co.'s Theta 1, 20-28-20, dr brown shale 3205 ft.

JASMINE—Helen Pet. Corp.'s No. 1, 23-25-27, dr gray sand 1616 ft.

McKITTRICK—Ozena Oil Co.'s Kendon 2, 27-29-21, 6¼-in cas cmt 2685 ft. Ohio's M. M. 1, 32-20-22, dr shale 4250 ft.

MIDWAY—Shell's Perris 1-A, 15-32-23, bridged at 6330 ft, testing. Standard's Mascot 1, 26-32-23, dr brown shale 9533 ft. Union's Reeves 1, 27-32-23, dr shale 1111 ft.

ROUND MOUNTAIN—Gerrard & Phillips' No. 1, 32-27-29, dr shale 1628 ft.

SAN EMIDIO—H. A. Bardeen's Klipstein 1, 18-10-23, dr 438 ft; Ramsey 1, 10-10-23, dr hard sand 425 ft.

SHALE HILLS—William Gilbert's No. 1, 35-26-18, rigging up to deepen from 750 ft. Girard Oil Co.'s Watkins 1, 28-26-18, dr out cmt, td 600 ft.

TEMBLOR HILLS—Shell's Gonyer 1, 32-32-23, dr hard brown shale 3006 ft.

WEED PATCH—Shell's Porter Day 1, 29-30-29, dr gray sand 2462 ft.

WILLOW SPRINGS—Moran & DeCamp's Marsh 1, 26-10-14, dr hard shale 200 ft.

SANTA BARBARA COUNTY

ARROYA PARIDA—Shell's Fithian 1, 18-4-25, sr 2382 ft.

BUELL CANYON—Union's Buell 1, dr shell and black shale 4115 ft.

CARPENTERIA—Kitty C. Bailard's No. 124-1, dr shell 2800 ft.

CASITAS PASS—Standard's Shepard 1, 26-4-25, dr red shale 1700 ft.

GATO RIDGE—Barnsdall's Teg.-1, 9-9-32, bldg road.

GOLETA—Walter Barnhart's Pomatto 1, 1-4-29, bridged to plug at 1820 ft. General Pet.'s Crandall 138-1, dr brown shale 2938 ft; More 2, shut in, td 4327 ft, will deepen. Standard's Edwards 2, dr gray sand 3338 ft.

LOMPOC — Ohio's Hollister 1, 2-6-34, dr hard shale 3267 ft. Prairie Oil & Gas' Shyvers 1, 15-7-35, dr shale 1313 ft.

ORELLA-CAPITAN—Shell's Cov. 2, coring 1205 ft; Rutherford 3, 1-4-31, coring 1989 ft.

POINT CONCEPCION—Standard's Gerber 1, sr to cmt 9-in cas at 4325 ft, td 4370 ft. Universal Consolidated's No. 1, 30-5-34, rigging up rotary.

SANTA MARIA—O. C. Field Gasoline Co.'s Norswing 1, 8-9-33, dr gray sand 665 ft. Shell's Carega 1, making production test, td 5714 ft.

VENTURA COUNTY

CAMARILLO—Calleguas Oil Syn.'s Leonard 1, 6-1-20, dr gray sand 1455 ft. Triunfo Oil Co.'s No. 1, 24-1-19, dr hard sand 1675 ft.

FILLMORE—General Pet.'s Burson's 1, 6-3-19, rigging rotary.

OJAI — California-Ventura Oil Co.'s La Crosse 1, co 5528 ft.

PIRU—Bolsa Chica Oil Corp.'s Snow 1-A, 4-4-18, 13⅜-in cas cmt 2010 ft. E. A. Fennell's Lankershim 1, 13-4-19, sd 1440 ft. George H. Hadley's No. 1, 13-4-19, dr shale 720 ft.

RINCON CREEK—Associated's Snowball 1, 19-4-24, dr hard gray sand 1538 ft.

CALABASAS—Olympic Corp.'s Calabasas 1, 18-1-17, cmt 13⅜in cas 2600 ft.

SANTA PAULA—W. W. Bryant's Anlauf 3, fsh 1150 ft. Empire Oil Co.'s Steen 4, 13-4-21, dr shale 3307 ft. Universal Exploration Co.'s Anlauf 2, 21-4-21, lcn.

SATICOY—Standard's Citrus 5, 10-2-22, swabbing, shows no oil or gas, td 8529 ft.

TIMBER CANYON—Southern Exploration Co.'s Canyon 1, 18-4-20, sd 1100 ft.

VENTURA—Prairie Oil & Gas' Sexton 1, 30-3-22, co 4000 ft, td 4457 ft.

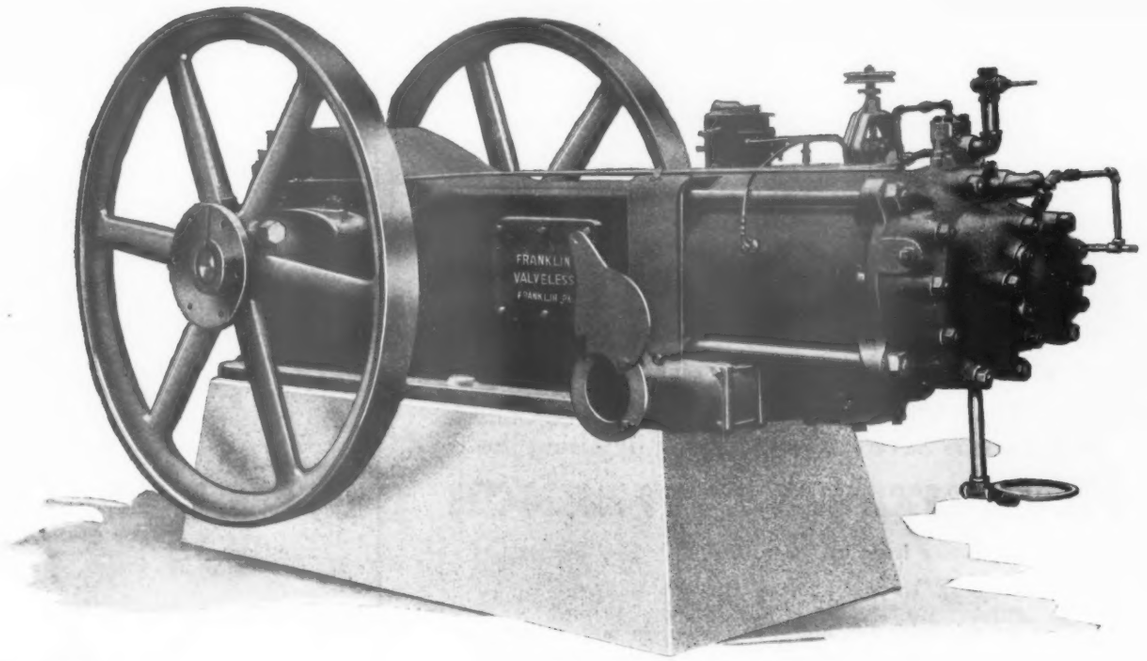
MISCELLANEOUS

FRESNO COUNTY—Rio Grande's Kerman 1, 35-13-16, lcn, Fresno-Madera Oil Syn's No. 1, 18-21-21, rigging to deepen from 4300 ft. Currency Pet. Co.'s No. 1, 28-21-14, will make production test, td 3610 ft. Western Gulf's Welsh 1, 26-15-12, dr gray sand 4115 ft.

KINGS COUNTY—Wellport Oil Co.'s No. 1, 9-24-17, dr gray sand 3333 ft. Oceanside Oil Co.'s No. 4, new lcn. J. E. O'Donnell's No. 1, 7-23-20, dr shale and sand 2938 ft.

MENDOCINO COUNTY—Twin State Oil Co.'s Soldani 1, 14-12-17, dr shale 2600 ft.

MONTEREY COUNTY—Standard's Pied-



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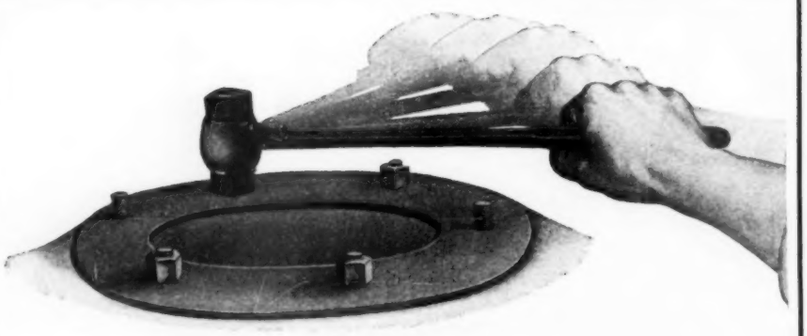

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mont 1, 23-22-7, dr shale 3842 ft. Union's Paige 1, 8-22-8, dr gray sand and streaks shale 3062 ft.

SAN LUIS OBISPO COUNTY—Panorama Oil Co.'s Panorama 1, 7-31-21, fsh for 6¼-in cas, td 4010 ft. Paso Robles Oil Co.'s Emerick 1, 34-27-15, dr hard sand, 3805 ft. Latin-American Oil Co.'s Upton 1, 31-27-15, changing equipment, td 4300 ft. Midwest Oil Co.'s Hately 1, 34-31-15, sr 3900 ft. Pismo Dome Oil Co.'s Pricco 2-A, 5-31-13, dr out cmt, td 1940 ft; Pricco C-1, 5-31-13, sd 1105 ft. Texas Pacific Coal & Oil's No. 1, 25-32-14, 5 3-16-in cas cmt 4000 ft.

TULARE COUNTY—Terra Bella Oil Co.'s Gardiner 1, 35-22-27, 8¼-in cas re-cmt 830 ft, td 863 ft.

SOUTHERN CALIFORNIA

BANDINI—George F. Getty's Kellam 1, coring sand and shale 4930 ft.

COMPTON—California Well Drilling Co.'s Del Amo 1, sd 8500 ft. Crimson Pet. Co.'s Vedder 1, 23-3-13, lcn.

EL MONTE—Morgan West's Sing 1, repairing engine, td 1895 ft.

GARDENA—Ohio Oil Co.'s Fish 1, dr shale 2674 ft.

HERMOSA—California-Ventura Oil Co.'s Smith 1, dr shale and sand 5800 ft.

LA HABRA—R. C. Rucker's Grazide 1, dr shale 3666 ft. Union's Sansinena 11, dr brown shale 2750 ft.

NEWHALL—Consolidated Oil Co.'s Hammond 1, dr shale 1277 ft. Pico Dome Oil Co.'s No. 1, dr shale 733 ft. Pioneer Pet. Co.'s Cannon 1, dr shale 2330 ft. York & Lockhart's Clampitt 2, rig. Southern Calif. Drilling Co.'s Needham 1, grade for rig.

NEWPORT—H. L. Hallett's No. 1, 20-6-10, new lcn. Mesa Pet. Corp.'s B. G. 1, bridged at 2800 ft.

POMONA—Grimes-Girard's No. 1, dr gray sand 942 ft.

PUENTE HILLS—Western Gulf's Diamond Bar 1, dr shale 3922 ft.

RICHFIELD—Weber and O'Brien's Brown 1, co for production test, td 5350 ft.

SAN FERNANDO — Shell's Andrews 1-1, running conductor cas 640 ft.

TELEGRAPH CANYON—Union's Rimpau 1, dr hard sand 3812 ft.

RIVERSIDE COUNTY—Hemet Pet. Co.'s Ward 1, dr shale 3559 ft. Trabuca Oil Co.'s No. 1, dr shale 4340 ft.

SAN BERNARDINO COUNTY—Marcell Pet. Co.'s Marcell 1, dr brown shale 1642 ft.

ENCINITAS—Borderland Exploration Co.'s No. 1, sdtr iron 2230 ft.

POINT LOMA — Borderland Exploration Co.'s No. 1, dr gray sand 2320 ft .

ARKANSAS

Company, Well and Location	Initial Production Bbls.	Depth
OUACHITA COUNTY—		
McDonald Bros., Wilson 2, 25-15-18	*	2908

COLUMBIA COUNTY — L. E. Parker's Franks 1, 25-19-22, sd 2831 ft.

CLEVELAND COUNTY — Donnell et al's Fee 1, 33-11-9w, dr 200 ft.

CLEBURNE COUNTY—Cosden Oil Co.'s Donithan Lbr. Co. 1, 19-9-10, set 10-in cas 2485 ft, dr 2590 ft.

DREW COUNTY—McClintock & Goedke's Ogle 1, 33-13-3, dr 2400 ft in new hole, td old hole 2530 ft.

FAULKNER COUNTY—Gold Creek O&G Co.'s Stermer 1, 17-4-13, ta 3872 ft; Stermer 2, 17-4-13, rigged up wo.

FRANKLIN COUNTY—Ozark Nat. Gas Corp.'s McElroy 1, 15-8-27, arr plug back, td 3100 ft. Red Bank Oil Co.'s Edtin 1, 33-10-26, rig up.

GARLAND COUNTY—H. H. Given's Garrett 1, 1-13-19w, sd 3435 ft.

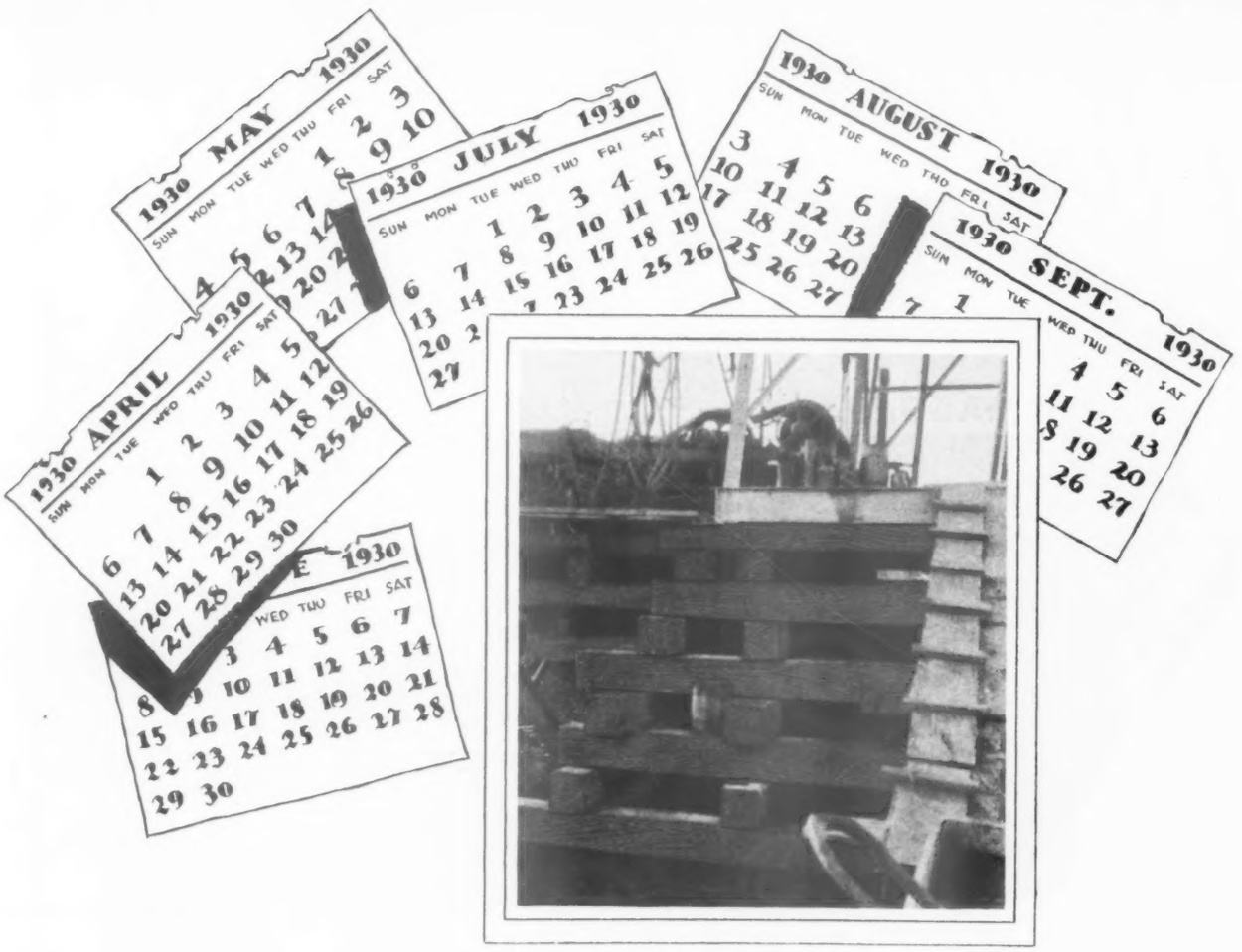
GRANT COUNTY—Jones & Watkins' Meek 1, 5-4-11, ta 1400 ft.

JOHNSON COUNTY—Ark. La. Pipe Line Co.'s Patterson 1, 14-10-14, dr shale 2960 ft. Blackwell O&G Co.'s Wyver 1, 21-8-25, jarring out 6-in cas at 2100 ft, td 5600 ft.

LOGAN COUNTY—M. W. Greesom's Perk 1, 21-8-24, sd 1309 ft.

LAWRENCE COUNTY — Marguerite Dev. Co.'s Broadway 1, 31-17-1, sd 45 ft.

LITTLE RIVER COUNTY—Grote et al's Allen 1, 31-12-31, ta 2941 ft. C. F. McDonald's



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Black 1, 12-13-28, tested sw 2016 ft, coring 2060 ft. Buck Oil Co.'s Taafe 1, 23-12-32, sd 2330 ft.

MADISON COUNTY—Phillips et al' Skinner 1, 11-14-28, arr resume dr 1461 ft.

NEVADA COUNTY — Roy Davis et al's Henry et al 1, 10-12-20, rigged up wo.

OUACHITA COUNTY — Anderson et al's Buck 1, 7-15-17, fsh for ds 2727 ft. Artex Oil Co.'s Smith 1, 31-13-17, ta 3188 ft. McDonald Bros.' Wilson 1, 25-15-18, dry abn, td 2908 ft. Magnolia Pet. Co.'s Grayson 2, 21-15-19, set 8⅛-inch cas 1478 ft, 250 ft oil 50 ft water in hole, wosr, td 1480 ft.

PIKE COUNTY—Theo. Davis, Tr.'s, Ruth Wilson 1, 25-5s-26w, sd 718 ft.

POPE COUNTY—Cosden Oil Co.'s Mo. Pac. R. R. 1, 13-9-19w, set 10-inch cas 2508 ft, fsh for bit 3435 ft.

SCOTT COUNTY—Mansfield Gas Co.'s Norris 1, set 10-inch cas 1447 ft, dr 2750 ft.

SEBASTIAN COUNTY—M. W. Greesom's Spears 1, 9-7-29w, lcn. Lavaca O&G Co.'s Cason 3, 21-8-30, dk. J. O. Ingram 7, 22-8-30, no report. A. G. Williams, Jr.'s, Patterson 1, 27-8-30, lcn. Lavaca O&G Co.'s Bradley 7, 28-8-30, dr 1056 ft; Southland 1, 28-8-30, bldg dk.

ST. FRANCIS COUNTY — Brownlee Oil Co.'s Whitted 1 1, 28-4-1, sd 400 ft.

UNION COUNTY—Lion O. R. Co.'s McDuffie 1, 32-19-16, ta 4506 ft. Johnson Drilling Co.'s Tate 1, 14-18-14, set 6⅝-inch cas 2204 ft, 10 ft sand 600 ft fluid in hole, wosr, td 2232 ft. H. L. Hunt's Pratt 6, 7-18-15, sand pumping 2214 ft. Al-Cal Oil Co.'s Haney 1, 1-18-16, sd wo 2770 ft. Malloy & Co.'s Robertson 3, 6-18-16, lcn; Goodwin 4, 36-17-16, set 6⅝-inch cas 2186 ft, sdtr bailer 2210 ft, dr 2612 ft; Murphy 1, 1-18-16, rig up. Wisinger & Ba"l's Rodgers 1, 31-17-15, cemtd off split joint 300 ft down after setting 6⅝-inch cas 2170 ft, wo cement to set. Lion O. R. Co.'s Ballard 1, 10-18-13, cored sw sand 3721 ft, coring 3804 ft. Johnson & Gummer's Cargile 1, 4-18-13, sd 3825 ft. Federal Pet. Co.'s Tillman 1, 9-18-13, lcn. Marine Oil Co.'s Winn Est. B-2, 10-18-13, set 8¼-inch cas 3528 ft, flowed 385 bbls pure 20.6 oil first hour 20 min. through 1¼-inch choke and 61/64-inch choke went showing sw, flowed 1205 bbls fluid 14 hrs, 60 to 80 per cent sw, showed 75 to 98 per cent sw when opened full 1¼ hrs, now flowing 65 bbls fluid hour, 3 ft sand 3 ft open hole, td 3534 ft. Simms Oil Co.'s Simmons A-1, 10-18-13, set 8¼-inch cas 3520-31 ft, hfo tubing up and bldg electric pumping plant, td 3532 ft; Simmons B-1, 10-18-13, set 12½-inch cas 250 ft, dr 2186 ft; Simmons A-2, 10-18-13, lcn. E. L. Chapman's School Dist. 1, 9-18-13, lcn. H. L. Hunt's Norris 1, 17-18-12, co td 3406 ft. Modisette Drilling Co.'s Union Sawmill 3, 14-18-14, cored sand 2239-44 ft, set 6⅝-inch cas 2238 ft, td 2244 ft. Root Ref. Co.'s Jerry 2, 21-17-14, dk.

WASHINGTON COUNTY—Lincoln Lease Holding Co.'s Townsite 1, 30-15-32, sd 1500 ft. C. H. Willoughby's Jones 1, 34-16-30, trying to kill water flow 2150 ft. O'Hara & Shetterley's Boyd 1, 12-16-32, ta 850 ft. Delbert Graves' Cunningham 1, 14-15-32, sd in gray sand 602 ft.

WHITE COUNTY—Letona Synd.'s Letona 1, 35-9-8, set 5-3/16-inch cas 3500 ft, sd 3650 ft.

VAN BUREN COUNTY — J. S. Martin's Scanland 1, 5-9-13, sd 50 ft.

YELL COUNTY—T. Luckett's Balcon 1, 36-7n-21w, arr resume dr 3550 ft.

MISSISSIPPI

Company, Well and Location	Initial Production Bbls.	Depth
LINCOLN COUNTY—		
Lincoln O&G Co., Pat Case 1, 21-8-6	*	2221

ALCORN COUNTY — Alcorn Pet. Co.'s Matthews 1, 14-2-7, fsh for 12 joints 6-inch cas lost trying to re-run at 2418 ft, td 2735 ft.

CHICKASAW COUNTY — Hightower & Golsan's Fleming 1, 20-13-3w, driving 8¼-inch below 1325 ft; Fleming 2, 15-13-2w, dk pat.

CLAIBORNE PARISH—Ben White's Old Hen 1, 26-10-4, sd 2004 ft.

HARRISON COUNTY (Gulfport Dist.)—Dalton Oil Co.'s Lopez 1, 15-7-10w, lcn abn will not drill.

HINDS COUNTY (Jackson Dist.) — Mrs. Ella Rawls Reeder's State Land 1, 25-6-1e, fsh for parted ds, td 2905 ft. Jackson O&G Co.'s Mayes 1, 2-5-1e, sd wo 2585 ft; Taylor 1, 35-6-1e, set 15¼-inch cas 61 ft, set 10-inch cas 797 ft, dr bldrs 1400 ft; Central Cotton Oil Co. 1, 3-5-1e, dk pat. Louisiana G&F Co.'s Harris 1, 35-6-1e, set 15¼-inch cas 93 ft, set 10-inch cas 820 ft. Love O&G Co.'s Bridges & Hilzim 1, 35-6-1e, dk. Love Pet. Co.'s Mendoza 1, 11-5-1e, sp dr 1425 ft. Progressive O&G Co.'s Mayes 1, 2-5-1e, dk pat. Tri-State O&G Co.'s E. S. Wilson 1, 23-6-1e, dk. Dome O&G Co.'s Elton 1, 5-4-1e, dk pat. F. X. Gowans' Fee 1, 19-6-1e, lcn.

KEMPER COUNTY (De Kalb Dist.)—W. W. Jones' Fee 1, lcn not given, dk.

LA FAYETTE COUNTY—F. E. West et al's May 1, 22-10-1w, rigged up, wo.

LAUDERDALE COUNTY (Meridian Dist.)—Lauderdale O&G Co.'s Lackey 1, 2-7-16, set 8¼-inch cas 2790 ft, wo, td 2816 ft. Meridian Nat. Gas Co.'s Mattie Houser 1, 33-8-18, sd in sandy shale, td 2826 ft. Boyd Hammond's Craig 1, 2-6-14, dk.

LINCOLN COUNTY (Brookhaven Dist.)—Lincoln O&G Co.'s Pat Case 1, 21-8-6, sw abn, td 2221 ft.

LEE COUNTY — Lee County Pet. Co.'s Hickman 1, 12-8-6, sd 920 ft.

MONROE COUNTY (Amory Dist.)—Amory Pet. Co.'s Hall 1, 8-13-17, set 8-inch cas 2293 ft, set 6-inch cas 2333 ft, showing sw, td old hole 3045 ft. Amory Dev. Co.'s Bourland 1, 2-13-19, sd in lime bailer in hole, td 2912 ft. Park Bowser's Cowart 1, 2-12-19, wo with pipe driven to 85 ft.

RANKIN COUNTY (Jackson Dist.)—Gulf Ref. Co.'s Rainey 1, 13-5-1e, set 15½-inch cas 88 ft, set 12½-inch cas 960 ft, set 9-inch cas 2500 ft, tested 5 to 7 mil ft gas, 1000 bbls sw, show heavy oil, later opened flowed 10,000 bbls sw show heavy oil, td 2520 ft. R. A. Moore et al's Interior Lbr. Co. 1, 28-6-2e, dk.

WARREN COUNTY (Vicksburg Dist.)—Henderson et al's Dornbusch 1, 8-18-15, sd wo with ds stuck in hole, td 2475 ft.

WEBSTER COUNTY — Cumberland Oil Co.'s Henley 1, 15-21-11, re-taking leased but still sd 1865 ft.

YALABOUSHA COUNTY (Water Valley Dist.)—J. D. Collette et al's Blackmer 1, 14-11-4w, topped red beds 2316 ft, sr, td 2433 ft.

YAZOO COUNTY — Amerada Pet. Corp.'s

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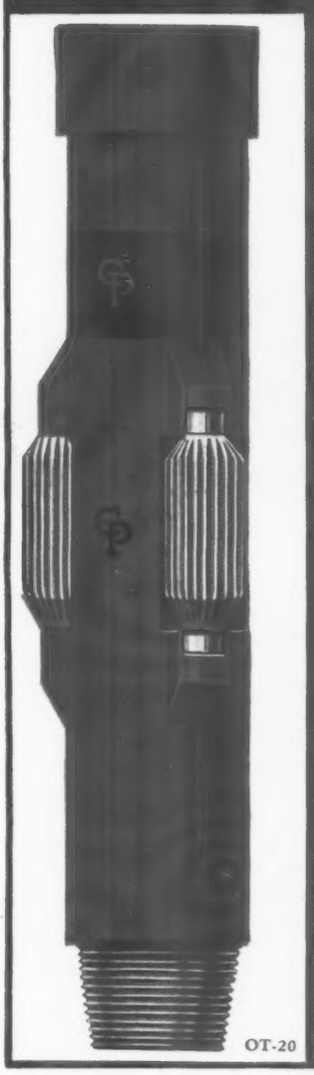

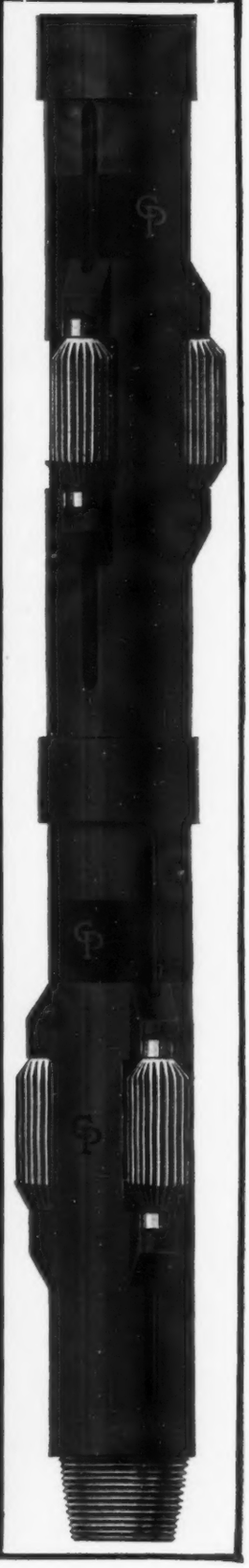

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THE AMERICAN WELL WORKS
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Campbell 1, 24-21-2, topped Cretaceous chalk 3600 ft, topped basal Midway 4910 ft, sd repr rig, in sandy lime, td 5200 ft.

ALABAMA

HOUSTON COUNTY—J. R. Sealey's Fee 1, 13-1n-27e, changing from cable tools to rotary, td 3100 ft.

LAMAR COUNTY—Briggs & Knapp's Wefel 1, 25-12-14, set 4⅞-inch cas 1658 ft, sd 1740 ft.

LAUDERDALE COUNTY — P. J. McAlpinte's O'Neal Hrs 1, 8-2s-13w, sp set 10-inch cas 169 ft, claim gas show 300 ft in shale, fsh for bit, td 300 ft.

MARION COUNTY — P. J. McAlpine's Clark 1, 22-11-14, dk pat.

MORGAN COUNTY—Albany-Decatur O&G Co.'s English 1, 6-6-4, fsh for cas, td 4130 ft.

SUMTER COUNTY—B. W. Bates' Fee 1, 3-18-1w, ta 1200 ft; Fee 2, 3-18-1w, rig up.

WASHINGTON COUNTY—Hobson et al's Wilson 1, 27-7-1w, arr resume dr in limey shale 881 ft; Hobson Bros. 1, 9-8-2w, sd 1450 ft. Oscar Brown's U. S. Land & Cotton 2, 25-3-2, dr below 720 ft, no recent report.

TENNESSEE

DECATUR COUNTY—Chester County O&G Co.'s Montgomery 1, set 6-inch cas 1045 ft, dr 1748 ft.

F. HAROLD GRAY

Fluid Packed Pump Company, Los Angeles, has appointed F. Harold Gray as special factory representative to take charge of sales and service in European and Asiatic fields. He left Los Angeles for Europe following the close of the Oil Equipment and Engineering Exposition.

Gray's experience in production work includes seven years service with the Standard Oil Company of New Jersey in Mexico and the Carter Oil Company in Seminole, Oklahoma, where he was associated with the field engineering department in charge of pumping equipment. Prior to entering the oil fields he was engaged in general import and export work in Eastern Europe.

Fluid Packed Pump Company has had Tony Statts in South American fields for several years as representative.

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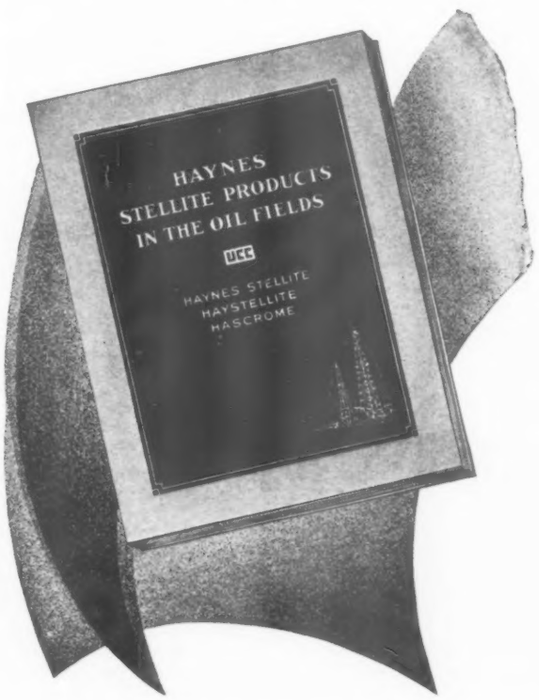

The extensive data included make it possible to estimate, in advance, the cost of materials required for servicing bits of any type or size.

This book, with the wealth of material contained, will make itself invaluable to those engaged in the servicing or manufacture of oil well drilling tools.

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Summary of Field Operations for March, 1930

RECAPITULATION—UNITED STATES

	Completions	Producers	Gas Wells	Failures	Initial Production Oil	Initial Production Gas	Total Prod.
Oklahoma	279	160	29	90	354,533	721¼	19,260,400
Kansas	89	39	7	43	14,916	24¼	3,574,200
Texas (outside Gulf Coast)	466	216	35	214	76,081	553	20,059,500
Gulf Coast	104	67	2	35	47,630	52	5,799,700
North Louisiana	41	17	10	14	2,145	211	1,273,850
Arkansas	29	18	2	9	416	62	1,818,250
Eastern States	440	188	134	118	7,466	117¼	4,111,800
Rocky Mountain	*	*	*	*	*	*	2,279,650
California	96	89	..	7	42,348	..	20,139,700
Total for U. S.	1,544	794	220	530	665,535	1,740¾	77,317,050
Total for February	1,463	881	201	381	990,896	1,075¼	74,280,200

*Not available.

WEST VIRGINIA

	Completions	Producers	Gas Wells	Failures	Initial Oil	Prod. Gas
Boone	18	1	17	..	10	17
Cabell	7	..	6	1	..	33¼
Calhoun	9	3	6	..	12	53¼
Clay	4	3	..	1	52	..
Doddridge	3	2	1	..	13	¼
Gilmer	8	..	5	3	..	8
Harrison	1	1	..	..	3	..
Jackson	4	1	..	3	5	..
Kanawha	11	2	9	..	28	8
Lincoln	5	..	5	..	..	13¾
Logan	2	..	1	1	..	1¼
Marion	2	..	1	1	..	1¼
Marshall	1	..	1	..	..	1½
Mingo	4	..	4	..	..	3½
Pleasants	1	..	..	1	..	..
Putnam	5	..	5	..	..	6¾
Raleigh	1	..	..	1	..	..
Ritchie	6	1	2	3	15	1¼
Roane	7	6	1	..	395	1¼
Tyler	2	..	..	2	..	..
Wayne	5	..	5	..	..	5½
Wetzel	1	..	1	..	..	1½
Wood	4	..	..	4	..	..
Total	111	20	70	21	533	68¼

CENTRAL OHIO

Ashland	13	4	2	7	19	2¼
Athens	10	1	5	4	4	1¾
Belmont	2	1	1	..	3	¼
Brown	1	..	..	1	..	..
Coshocton	4	2	1	1	55	1½
Fairfield	1	..	..	1	..	..
Guernsey	4	1	2	1	46	1
Harrison	1	1	..	..	2	..
Hocking	4	4	..	..	70	..
Holmes	1	..	1	..	..	¼
Knox	3	..	3	..	..	13½
Lake	1	..	..	1	..	..
Licking	9	8	1	..	341	¼
Lorain	3	..	1	2	..	1¼
Meigs	4	..	1	3	..	¾
Muskingum	13	7	3	3	850	1¾
Perry	8	6	1	1	494	1¾
Stark	1	..	..	1	..	..
Summit	3	..	2	1	..	5
Trumbull	1	..	..	1	..	..
Tuscarawas	4	1	3	..	100	1½
Vinton	4	3	1	..	8	¼
Wayne	5	..	3	2	..	1
Total	100	39	31	30	1992	28¾

NORTHWESTERN OHIO

Auglaize	1	..	..	1	..	..
Hancock	1	1	..	..	35	..
Henry	1	1	..	..	30	..
Seneca	3	1	1	1	1	¼
Total	6	3	1	2	66	¼
Total	131	49	43	39	2074	33¼

SOUTHEASTERN OHIO

Monroe	3	..	2	1	..	½
Morgan	8	2	6	..	7	3
Noble	2	..	1	1	..	¼
Washington	12	5	2	5	9	½
Total	25	7	11	7	16	4¼

NEW YORK

	Completions	Producers	Gas Wells	Failures	Initial Oil	Prod. Gas
Allegany	18	15	1	2	96	½
Total	18	15	1	2	96	½

PENNSYLVANIA

Allegheny	2	..	2	..	..	2
Beaver	2	1	..	1	2	..
Bradford	29	29	..	..	272	..
Butler	6	3	2	1	9	2
Center-Middle	4	4	..	..	9	..
Greene	7	..	6	1	..	2
Venango	11	9	2	..	20	1
Washington	1	1	..	..	3	..
Total	62	47	12	3	315	7

INDIANA

Adams	1	1	..	..	30	..
Hancock	1	..	1	..	..	¾
Madison	1	..	1	..	..	½
Perry	2	..	..	2	..	..
Pike	5	4	1	..	317	1½
Total	10	5	3	2	347	2¼

ILLINOIS

Crawford	5	3	..	2	60	..
Lawrence	1	1	..	..	130	..
St. Clair	6	4	..	2	205	..
Wabash	1	..	..	1	..	..
Total	13	8	..	5	395	..

MICHIGAN

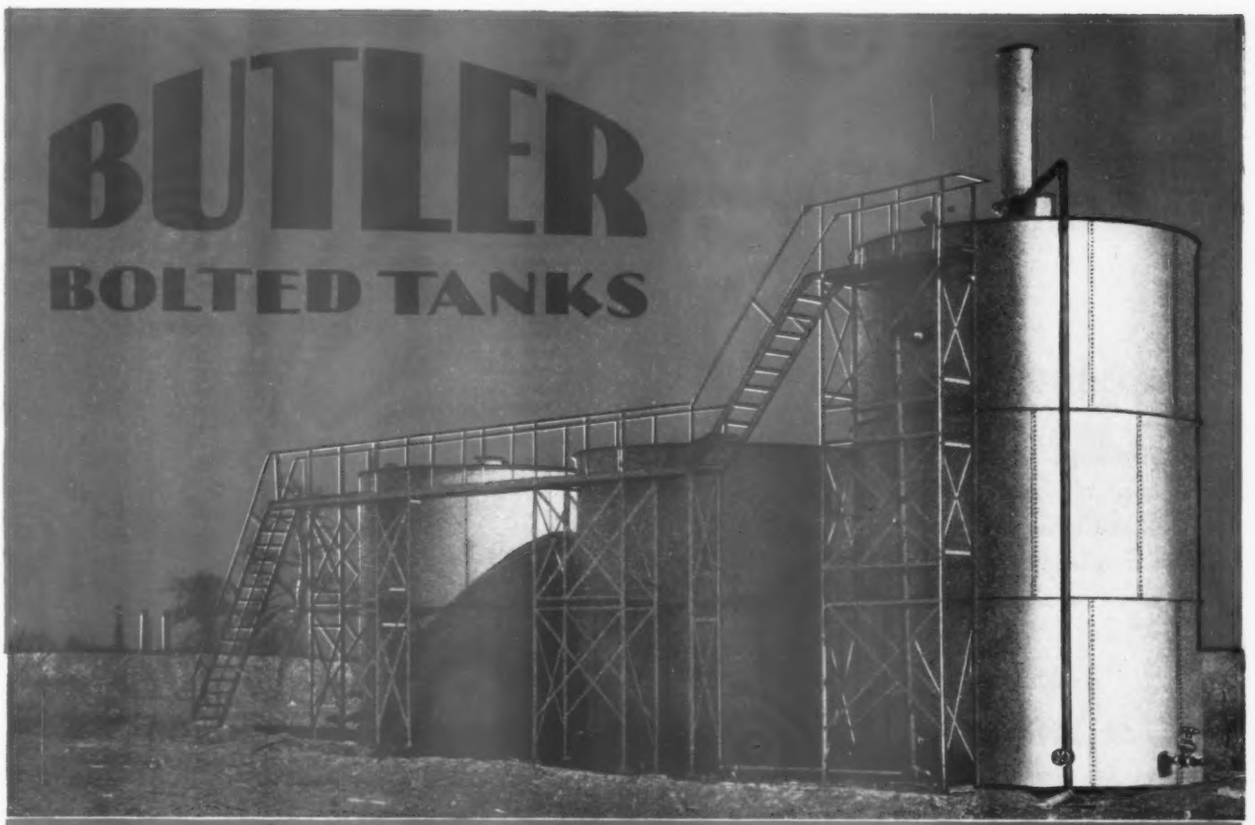
Allegany	1	..	..	1	..	..
Alpena	1	..	..	1	..	..
Ingham	1	..	..	1	..	..
Isabella	5	5	..	..	520	..
Midland	10	10	..	..	1,728	..
Muskegon	3	1	1	1	20	1
Total	21	16	1	4	2,268	1

KENTUCKY

Daviess	19	5	1	13	160	1½
Hancock	1	1	..	..	5	..
Henderson	3	2	1	..	65	¾
Knox	1	..	1	..	..	1¼
Magoffin	2	2	..	..	11	..
McCreary	1	..	..	1	..	..
McLean	2	2	..	..	100	..
Morgan	1	1	..	..	2	..
Muhlenberg	3	2	..	1	85	..
Ohio	36	13	1	22	1010	1½
Warren	1	..	..	1	..	..
Wayne	3	..	..	3	..	..
Total	73	28	4	41	1438	5

TENNESSEE

Wildcats	1	..	..	1	..	..
Total Eastern States	440	188	134	118	7,466	117¼
Total Crude Production						4,111,800



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M. A. Trimmer, at Blackwell and Lowell, Oklahoma.

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OKLAHOMA

	Completions	Producers	Gas Wells	Failures	Initial Oil	Prod. Gas
Beckham	1	1	..	..	100	..
Caddo	2	2	..	..	1180	..
Carter	4	4	..	..	215	..
Cotton	7	4	..	3	143	..
Creek	21	7	5	9	1,055	9¼
Grady	1	..	1	..	...	29
Grant	2	..	1	1	...	8
Greer	1	..	..	1	...	..
Hughes	4	1	1	2	175	8½
Jefferson	1	1	..	..	275	..
Kay	1	1	..	..	100	..
Kiowa	1	..	..	1	...	..
Latimer	1	..	..	1	...	..
Lincoln	1	..	..	1	...	..
Logan	3	..	1	2	...	2
Marshall	12	7	..	5	538	..
Muskogee	15	4	4	7	175	4¾
Noble	2	2	..	..	1,100	..
Okfuskee	16	7	3	6	255	23¼
Oklahoma	35	31	3	1	292,519	498
Okmulgee	9	3	1	5	40	10
Osage	9	6	1	2	557	2
Pawnee	5	2	..	3	290	..
Payne	7	5	1	1	2561	4½
Pittsburg	3	..	2	1	...	50
Pontotoc	10	9	..	1	634	..
Pottawatomie	23	20	..	3	9,411	..
Seminole	55	39	3	13	42,972	79
Stephens	9	3	..	6	233	..
Tulsa	4	1	..	3	5	..
Wagoner	12	..	2	10	...	1
Woodward	2	..	..	2	...	..
Total	279	160	29	90	354,533	721¼

OKLAHOMA PRODUCTION SUMMARY

Braman	110,050
Blackwell	101,850
Hubbard	48,800
Thomas	18,600
Tonkawa	249,000
Garber	137,200
Burbank	510,850
Osage	819,100
Cushing	445,250
Yale	278,750
Davenport	35,700
Bristow	505,350
North Okmulgee	346,350
Lyons-Deaner	194,650
Cromwell	228,900
Papoose	88,950
Wewoka	122,900
Seminole	665,750
Bowlegs	691,200
Searight	287,350
Little River	1,296,400
Earlsboro	1,128,500
East Earlsboro	1,220,000
Duncan	234,200
Graham	112,550
Fox	38,950
Healdton	371,950
Scholem-Alechem	420,950
Hewitt	228,700
Pearson	21,900
Oklahoma City	2,234,050
Mission	393,150
Carr City	296,100
East Seminole	110,400
East Little River	505,250
Asher	73,650
Sasakwa	308,050
St. Louis	1,285,650
Allen	623,550
Maud	192,350
Logan County	280,300
Konawa	263,300
Others	1,737,050
Total	19,260,400

KANSAS PRODUCTION SUMMARY

Greenwood	595,100
Florence	25,550
Peabody	100,850
El Dorado	416,600
Augusta-Fox Bush	89,900
Rainbow Bend	33,650
Russell	107,100
Churchill	136,600
Oxford	88,250
Voshel	249,200
Sedgwick	671,800
Others	1,059,600
Total	3,574,200

KANSAS

	Completions	Producers	Gas Wells	Failures	Initial Oil	Prod. Gas
Butler	7	1	..	6	75	..
Chase	1	1	..	..	25	..
Chautauqua	2	..	1	1	...	½
Clay	1	..	..	1	...	..
Coffey	2	2	..	..	165	..
Cowley	8	2	3	3	106	9¼
Douglas	1	..	..	1	...	..
Elk	2	1	..	1	30	..
Ellis	1	1	..	..	215	..
Franklin	1	..	1	..	...	5
Greenwood	18	12	1	5	1,340	½
Harvey	4	..	..	4	...	..
Kingman	1	..	..	1	...	..
Labette	1	..	..	1	...	..
Lyon	1	..	..	1	...	..
Marion	2	1	..	1	115	..
Marshall	1	..	..	1	...	..
McPherson	9	9	..	..	9,635	..
Morris	1	1	..	..	20	1
Osborne	2	..	..	2	...	..
Reno	1	..	..	1	...	..
Rice	3	3	..	..	1,995	..
Riley	1	..	..	1	...	..
Russell	3	1	..	2	115	..
Sedgwick	3	2	..	1	1,000	..
Shawnee	1	..	..	1	...	..
Smith	2	..	..	2	...	..
Stevens	1	..	1	..	...	8
Sumner	3	..	..	3	...	..
Trego	2	..	..	2	...	..
Woodson	3	2	..	1	80	..
Total	89	39	7	43	14,916	24¼

CALIFORNIA

Elwood	1	1	..	..	3,500	..
Long Beach	16	16	..	..	7,150	..
Maricopa Flats	5	5	..	..	4,910	..
Midway-Sunset	1	1	..	..	300	..
Montebello	1	1	..	..	250	..
Mt. Poso Creek	2	2	..	..	600	..
Potrero	1	1	..	..	300	..
Richfield	1	1	..	..	100	..
Rincon	2	2	..	..	100	..
Round Mountain	1	1	..	..	150	..
Santa Fe Springs	55	55	..	..	24,665	..
Summerland	1	1	..	..	40	..
Ventura	1	1	..	..	200	..
W. Coyote	1	1	..	..	83	..
Wildcats	7	..	..	7	...	..
Total	96	89	..	7	42,348	..

CALIFORNIA PRODUCTION SUMMARY

Santa Fe Springs	4,664,700
Long Beach	3,210,500
Huntington Beach	937,500
Dominguez	279,500
Inglewood	557,200
Midway-Sunset	2,280,000
Ventura	1,396,300
Seal Beach	772,900
Elwood-Goleta	1,188,800
Kettleman Hills	394,300
Others	4,458,000
Total	20,139,700

MOUNTAIN STATES PRODUCTION SUMMARY

WYOMING

Salt Creek	912,850
Grass Creek	63,800
Elk Basin	23,000
Big Muddy	64,250
Lost Soldier	97,900
Rock Creek	69,950
Lance Creek	5,000
Oregon Basin	138,450
La Barge	65,700
Others	92,400
Total	1,533,300

MONTANA

Cat Creek	37,600
Sunburst	162,900
Pondera	61,800
Others	1,550
Total	263,850

COLORADO

Moffats	33,100
Fort Collins	46,350
Florence	18,850
Others	46,000
Total	144,300

PERFORMANCE!

THE PURE OIL COMPANY

ARKANSAS PRODUCING DIVISION
EL DORADO, ARKANSAS

June 20, 1929

Johnson Formation Testing Company,
Exchange Building,
El Dorado, Arkansas.

Attention: Mr. Luther Johnson

Dear Sirs-

I take this occasion to compliment you on the success we have had in our developments in this Division with the use of the Johnson Drill Stem Tester. I consider the test which we made on our M. H. Nash Well No. 2 in the Rainbow Field to be one of the very best we have had. It prompted me to review our records and I find that we have in our activities in that area, used the Johnson Testing Tool approximately 150 times, and out of that number we have not as yet had a failure.

We have been governed in all our procedures as to the setting of casing, etc., by the tests made by the Johnson Testing Tool.

With kindest personal regards, I am

Yours very truly,

THE PURE OIL COMPANY

BY: [signature]

Manager Arkansas Producing Division.

PRS'L

And ~ Here's the Evidence

Johnston Formation Testing Corporation's tool has gained a wide reputation among leading operators first, because it was designed and made by practical oil men of vast experience in overcoming field problems and second, because of its excellent performance. This tool discovered the Champagnolle (Rainbow City) and Mount Holly, Arkansas; Urbana, Louisiana; Esperson Dome field, and the new pay horizon at Lost Lake, Texas.

SUNOCO MOTOR OIL

PRODUCER, REFINER SHIPPER AND EXPORTER OF PETROLEUM AND ALL ITS PRODUCTS

J. Howard Pew, President
J. Edgar Pew, Vice President

Sun Oil Company
American Exchange National Bank Bldg.
Dallas, Texas.

June 20th, 1929.

Mr. Luther Johnston,
El Dorado, Arkansas.

Dear Sir:-

I understand you are going to a new territory with your testing tool, the Johnston formation tester.

I would be glad to recommend to any one that is contemplating testing any formation, the use of this tool. My experience with the tool has been very satisfactory on three different wells, on the three wells testing at different depths I have run the tool around eighteen or twenty times, have tested oil, gas, salt water and dry. On these particular wells the tool was run on sand which carried a large volume of oil and gas, and we experienced no trouble whatever.

It is my opinion that the testing tool has been one of the greatest inventions in the past few years. If there is any information further that I can give to any one in regard to this tool I will be glad to do so.

I am,

Yours truly,

SUN OIL COMPANY

SdGevne

No rotating of pipe is necessary to open the tester; thus the hole is not distorted by seating the tool. It is as easy to open at 6000 as it is at 100 feet, and vice versa.

A representative at any of the addresses below will gladly furnish complete information on the Johnston tester.

"Why Set Casing Before You Know?"

WRITE FOR FULL DETAILS

JOHNSTON FORMATION TESTING CORP.

EL DORADO, ARK.—Exchange Bank Bldg., Phone 472

HOUSTON—West Bldg., Phone, Capitol-6639

SHREVEPORT—618 Lake St., Phone 7645

NEW MEXICO

Table Mesa	3,100
Artesia	23,300
Hogback	13,900
Rattlesnake	27,500
Balance Lea and Eddy Counties	240,950
Others	29,450
Total	338,200
Grand Total Rocky Mountain States	2,279,650

NORTH LOUISIANA

Section—	Completions	Producers	Gas Wells	Failures	Initial Prod. Oil	Initial Prod. Gas*	Total Prod.
Bellevue	..	..	..	..	....	..	20,450
Caddo	2	1	..	1	15	..	384,800
Claiborne	1	..	..	1	....	..	.....
Cotton Valley	..	..	..	..	....	..	72,500
DeSoto	..	..	..	..	....	..	95,050
Elm Grove	..	..	..	..	....	..	13,950
Haynesville	..	..	..	..	....	..	142,200
Homer	..	..	..	..	....	..	111,250
LaSalle	1	1	..	..	25	..	.....
Morehouse	1	..	1	..	....	32	.....
Ouachita	2	..	2	..	....	11	.....
Pleasant Hill	..	..	..	..	....	..	22,550
Richland	5	..	4	1	....	148	.....
Sabine	1	..	..	1	....	..	.....
Union	1	..	1	..	....	4	.....
Urania	..	..	..	..	....	..	163,650
Zwolle	..	..	..	..	....	..	129,550
Wildcats	27	15	2	10	2,105	16	.....
Others	..	..	..	..	....	..	117,900
Total	41	17	10	14	2,145	211	1,273,850

LOUISIANA GULF COAST

Section—	Completions	Producers	Gas Wells	Failures	Initial Prod. Oil	Initial Prod. Gas*	Total Prod.
Bayou Bouillon	1	1	..	..	1,800	..	21,400
Bayou Blue Dome	1	1	..	..	10	..	.....
Dog Lake Bayou	1	..	..	1	....	..	.....
East Hackberry	1	1	..	..	1,000	..	37,350
Edgerly	2	1	..	1	4	..	16,450
Evangeline	..	..	..	..	....	..	33,400
Glenwild	1	..	..	1	....	..	.....
Hackberry	1	1	..	.	1,400	..	37,250
Jefferson Island	1	..	..	1	....	..	.....
Lake Barre	1	1	..	..	2,050	..	.....
Lockport	..	..	..	..	....	..	88,050
Napoleonville	1	..	..	1	....	..	.....
Pine Prairie	1	..	..	1	....	..	.....
Port Barre	..	..	..	..	....	..	55,550
Sorrento	..	..	..	..	....	..	3,100
Starks Dome	4	..	..	4	....	..	.....
Sulphur	..	..	..	..	....	..	140,350
Sweet Lake	1	1	..	..	75	..	1,600
Vermillion Bay Dome	1	..	..	1	....	..	.. ..
Vinton	1	1	..	..	80	..	124,500
Others	..	..	..	..	....	..	49,000
Total	19	8	..	11	6,419	..	608,000
Total Louisiana	60	25	10	25	8,564	211	1,881,850

ARKANSAS PRODUCTION SUMMARY

Eldorado	124,100
Champagnolle	147,800
Smackover light	164,500
Smackover heavy	1,279,900
Stephens	28,400
Nevada	33,750
Lisbon	32,500
Others	7,300
Total	1,818,250

ARKANSAS

	Completions	Producers	Gas Wells	Failures	Initial Oil	Prod. Gas
Ouachita	4	3	1	..	97	27
Union	11	9	1	1	156	35
Wildcats	14	6	..	8	163	..
Total	29	18	2	9	416	62

PANHANDLE TEXAS

Section—	Completions	Producers	Gas Wells	Failures	Initial Prod. Oil	Initial Prod. Gas*	Total Prod.
Carson	4	..	3	1	....	55¼	289,850
Gray	9	8	1	..	5,875	35	1,757,400
Hutchinosn	1	1	..	..	125	..	719,350
Wheeler	9	1	7	1	30	260	16,900
Others	..	..	..	..	....	..	19,050
Total	23	10	11	2	6,030	350¼	2,802,550

NORTH TEXAS

Archer	50	29	..	21	1,938	..	544,950
Baylor	11	5	..	6	970	..	.....
Burkburnett	..	..	..	..	....	..	251,850
Clay	4	..	1	3	....	2	.....
Cooke	16	6	..	10	300	..	333,450
Electra	..	..	..	..	....	..	353,200
Foard	3	..	1	2	....	3	.....
KMA-Iowa Park	..	..	..	..	....	..	159,850
Montague	4	4	..	..	300	..	(A)
Wichita	26	17	..	9	1,110	..	.....
Wilbarger	12	9	..	3	1,603	..	770,000
Others	..	..	..	..	....	..	67,450
Total	126	70	2	54	6,221	5	2,480,750

WEST TEXAS

Crane	2	2	..	..	550	..	1,412,300
Crockett	..	..	..	..	....	..	65,400
Ector	2	1	..	1	700	..	93,750
Glasscock	3	3	..	..	3,740	..	.....
Howard	12	11	..	1	2,285	..	1,197,750
Jones	..	..	..	..	....	..	65,100
Mitchell-Scurry	1	..	..	1	....	..	68,950
Pecos	19	16	..	3	6,740	18	182,550
Yates Pool	..	..	..	..	....	..	3,919,300
Reagan	3	3	..	..	200	..	518,850
Upton	1	1	..	..	250	..	.....
Ward	3	1	..	2	20	..	.....
Winkler	..	..	..	..	....	..	2,744,150
Wildcats	15	..	..	15	....	..	.....
Others	..	..	..	..	....	..	92,050
Total	61	38	..	23	14,485	18	10,360,150

WEST CENTRAL TEXAS

Brown	16	4	..	12	148	..	243,750
Callahan	17	3	2	12	130	6¾	114,300
Coleman	24	11	..	13	989	..	151,950
Eastland	20	6	5	9	95	10	166,150
Erath	5	..	3	2	....	8¼	.....
Hood	1	..	..	1	....	..	.....
Jack	9	8	..	1	675	8	130,950
Kimble	1	..	..	1	....	..	.....
Palo Pinto	5	1	2	2	8	1¾	22,750
Shackleford	12	3	1	8	75	½	219,100
Stephens	9	3	5	1	45	35½	180,750
Throckmorton	6	..	..	6	....	..	27,350
Young	59	21	..	38	2,615	..	302,200
Others	..	..	..	..	....	..	44,350
Total	184	60	18	106	4,780	70¼	1,603,600

(A) Production included under Cook County.

TEXAS RECAPITULATION

	Completions	Producers	Gas Wells	Failures	Initial Production Oil	Initial Production Gas*	Total Prod.
Panhandle	23	10	11	2	6,030	350¼	2,802,550
Southwest	63	38	4	21	44,565	108	2,021,850
North	126	70	2	54	6,221	5	2,480,750
East	1	...	1	....	....	1	.....
West	61	38	...	23	14,485	18	10,360,150
West Central	184	60	18	106	4,780	70¼	1,603,600
East Central	8	...	...	8	....	....	790,600
Total Outside Gulf Coast	466	216	36	214	76,081	553	20,059,500
Texas Gulf Coast	85	59	2	24	41,211	52	5,191,700
Grand Total	551	275	38	238	117,292	605	25,251,200

*Millions of cubic feet.

B. S. & B. *Portable* SAFETY

Now Ne

STEEL WALK STAIR WAYS

Practical - SAFE - Fireproof

And now—some[thing] new, that's practical—that lessens fire risk—that's permanent—that affords safety—the men who must climb about the storage tanks.

We are manufacturing in addition to our Tanks, Steel Walkways and Stairways for use in the oil fields. This equipment is designed so that it is simple to install, easy to remove, adjustable, adaptable to any size or [illegible] of tank battery.

These Steel Walkways and Stairways are made for use with [illegible] batteries and are constructed so that they may be used on batteries eight feet high, sixteen feet high, or to be adjustable to any other height or length. The photograph to the left shows their strength and rigidity. The use of steel throughout to replace the old wood walkways, entirely eliminates the fire hazard.

Strong

Adjustable

Safety Walkway sections are all six feet long over all. They are made in two widths, two feet wide of twelve gauge metal, and three feet wide, made of ten gauge material. The Safety feature of the Walkways and Stair Treads is made by using one-half inch dies and three-eighths inch punch. This turns up a very high burr which makes these Walkways absolutely safe under any kind of weather conditions.

As Simple as Building Toys

Erecting these B. S. & B. Steel Stairways and Walkways is as simple as building models from erection toys, it's merely a matter of bolting together the pieces of material which are adjustable to any height or length.

There are only four different kinds of material used in the construction: Safety Walkway Section, Angle Posts, Bracing Channels and Stair Treads. All holes used in the installation of the Walkways are punched on two-inch centers for half-inch bolts. By carefully spacing all of the holes exactly two inches center to center, it is practical to use these punchings for various fastenings as the occasion may demand. The Walkways are therefore adaptable to any kind of a condition which may exist. The first cost is reasonably low, and this equipment will last indefinitely. It may be taken down and used over and over again, without waste of material, when the tank battery is moved from one location to another.

Specify B. S. & B. *Safety Walkway on your next installation!*

Made by the Manufacturers of

B.S.&B. Perfection Vapor Pressure TANKS

This type of tank is the watchdog of your crude. B. S. & B. Service is available throughout the Mid-Continent and Rocky Mountain Fields and that service may be had on the delivery and installation of these Steel Walkways and Stairways.

Ask our representative to show photographs and present facts, or let us send you more information regarding the B. S. & B. Steel Walkways and Stairways. Address Dept. A-22.

EFFICIENT B S & B SERVICE DEPENDABLE

Our Watchword QUICK SERVICE

Black Sivalls & Bryson INC.

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Vertical Turbine
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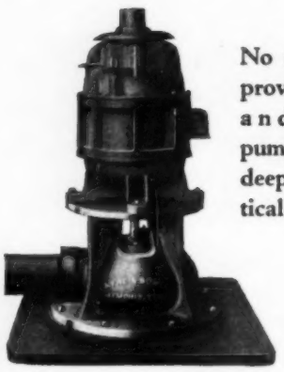
oil lubricated - - -



No mechanism has been proven more practical and economical for pumping water from deep wells, than the vertical turbine pump.

Write for new bulletin.

Layne & Bowler, Inc.

MEMPHIS HOUSTON

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The OIL WEEKLY,
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Gentlemen: Please find enclosed one dollar (check or currency will do) for which send me your publication for one year.

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and my position is .....

(BE SURE TO STATE COMPANY AND POSITION, otherwise it will be necessary for us to hold up entering your subscription until we can get this information from you.)

EAST CENTRAL TEXAS

Section—	Completions	Producers	Gas Wells	Failures	Initial Prod. Oil	Initial Prod. Gas*	Total Prod.
Boggy Creek	..	..	..	..	....	..	111,200
Corsicana-Powell	..	..	..	..	....	..	187,050
Currie	..	..	..	..	....	..	10,050
Mexia	..	..	..	..	....	..	129,400
Nigger Creek	..	..	..	..	....	..	6,200
Richland	..	..	..	..	....	..	7,750
Van Zandt	..	..	..	..	....	..	311,050
Wortham	..	..	..	..	....	..	27,900
Wildcats	8	..	..	8	....	..	.....
Total	8	..	..	8	....	..	790,600

TEXAS GULF COAST

Barbers Hill	10	9	..	1	7,100	..	797,600
Batson	2	1	..	1	5	..	37,200
Big Creek	..	..	..	..	....	..	91,500
Blue Ridge	2	2	..	..	116	..	57,800
Boling	1	..	..	1	....	..	31,050
Clay Creek	1	..	1	..	....	2	49,650
Damon Mound	..	..	..	..	....	..	15,500
Esperson Dome	2	2	..	..	1,050	..	40,950
Eureka	1	..	..	1	....	..	.....
Fannett	1	1	..	..	1,350	..	40,050
Genoa	1	..	..	1	....	..	.....
Goose Creek	1	1	..	..	120	..	154,550
Hankamer	1	1	..	..	2,300	..	.....
Hull	6	6	..	..	1,290	..	281,550
Humble	7	6	..	1	9,803	..	625,250
Moores Field	1	1	..	..	2,200	..	.....
North Dayton	..	..	..	..	....	..	27,800
Orange	1	1	..	..	20	..	75,450
Pettus	3	1	..	2	1,900	..	.....
Pierce Junction	7	5	..	2	3,680	..	339,550
Port Neches	..	..	..	..	....	..	76,450
Raccoon Bend	5	4	..	1	775	..	254,550
Refugio	13	11	1	1	6,750	50	1,235,450
San Felipe	1	..	..	1	....	..	.....
Saratoga	1	..	..	1	....	..	32,500
Sour Lake	..	..	..	..	....	..	71,250
South Liberty	3	3	..	..	645	..	158,000
Spindle Top	6	2	..	4	1,120	..	.....
Sugar Land	1	1	..	..	768	..	333,500
West Columbia	1	1	..	..	220	..	188,300
Wildcats	6	..	..	6	....	..	.....
Others	..	..	..	..	....	..	176,250
Total	85	59	2	24	41,212	52	5,191,700

SOUTHWEST TEXAS

Bastrop	1	..	..	1	....	..	.....
Caldwell	2	2	..	..	320	..	.....
Dale	..	..	..	..	....	..	9,300
Darst Creek	34	27	..	7	40,053	..	484,300
Duval	3	2	1	..	75	35	.....
Gonzales	2	..	..	2	....	..	.....
Guadalupe	2	..	..	2	....	..	.....
Hays	1	..	..	1	....	..	.....
Jim Hogg	1	..	..	1	....	..	.....
Laredo District	..	..	..	..	....	..	271,050
Live Oak	1	..	..	1	....	..	.....
Luling	..	..	..	..	....	..	314,600
Lytton Springs	..	..	..	..	....	..	27,900
Maverick	2	1	..	1	42	12	.....
Medina	1	..	..	1	....	..	.....
Salt Flat	1	1	..	..	125	..	716,650
Somerset	..	..	..	..	....	..	41,550
Travis	1	..	..	1	....	..	.....
Webb	4	..	2	2	....	55	.....
Williamson	2	2	..	..	2,250	..	.....
Zapata	3	3	..	..	1,700	..	.....
Zavalla	2	..	1	1	....	6	.....
Others	..	..	..	..	....	..	72,800
Total	63	38	4	21	44,565	108	2,021,850

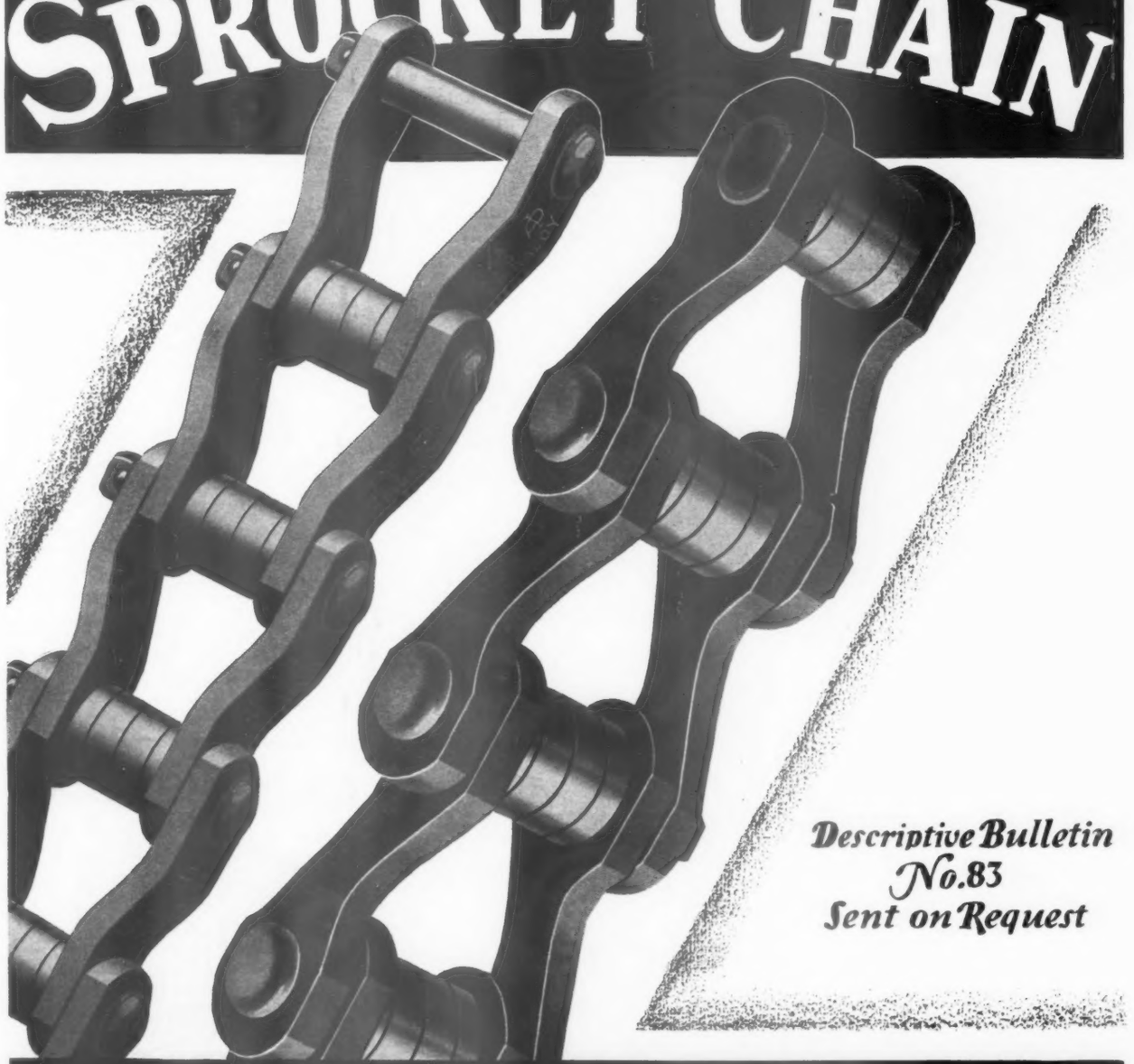
EAST TEXAS

Panola	1	..	1	..	....	1	.....
Total	1	..	1	..	....	1	.....

Buffalo Bolt Company, North Tonawanda, New York, has issued a 16-page catalog covering sucker and pull rods manufactured by the company. Dimensions in table form are carried on the complete line of rods of the company and illustrated descriptions are devoted to each separate item. The catalog will be mailed upon request.

C. C. Brown, field representative for Gray Specialty Company, 6418 Esperson Street, Houston, has recently been transferred from Southwest Texas to Oklahoma, and is making his temporary headquarters at the Mayo Hotel, Tulsa. Gray Specialty Company is running full production on the new high pressure tubing head, which was designed by C. C. Brown and which is owned, manufactured and distributed by the company.

IDEAL
SPIRALOY
SPROCKET CHAIN



Descriptive Bulletin
No. 83
Sent on Request

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Republic Iron & Steel Company, Youngstown, Ohio, has recently published a 32-page booklet on Concan Iron Pipe. Photographic illustrations showing Concan iron pipe in the making and the finished product in use are used, together with complete descriptions of all classes of Concan iron materials manufactured and distributed by this company. This piece of literature covers, in a comprehensive nature, Concan Iron pipe, related to the modern stainless iron, and goes into the general type problems in detail. A copy of the booklet will be furnished upon request.

The W. C. Norris Company has recently issued a 24-page loose leaf booklet on pump jacks and surface equipment for oil well pumping. Information concerning the proper setting, alignment and care of pump jacks generally, is offered to the readers in this booklet. Illustrations and complete descriptions of all the units manufactured by this company, together with charts on rod line pulls, pumping stroke and other phases of pumping are thoroughly covered.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS OF AUGUST 24, 1912

Of the Oil Weekly, published weekly at Houtson, Texas, for April 1st, 1930.

State of Texas, County of Harris:

Before me, a Notary Public in and for the State and county aforesaid, personally appeared A. L. Burns, who, having been duly sworn according to law, deposes and says that he is the Business Manager of the The Oil Weekly, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 411, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are:

Publisher: R. L. Dudley, 3238 Huntington Drive, Houston, Texas.

Editor: Spencer W. Robinson, 5002 Scotland, Houston, Texas.

Managing Editor: J. Kent Ridley, 4401 Greely, Houston, Texas.

Business Manager: A. L. Burns, 4311 San Jacinto, Houston, Texas.

2. That the owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding one per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a firm, company, or other unincorporated concern, its name and address, as well as those of each individual member, must be given). The Gulf Publishing Company, Houston, Texas; James Anderson, Houston, Texas; R. L. Blaffer, Houston, Texas; Mrs. Sarah Campbell Blaffer, Houston, Texas; A. L. Burns, Houston, Texas; J. F. Carter, Jr., Tulsa, Oklahoma; Dr. N. L. Dudley, Goose Creek, Texas; R. L. Dudley, Houston, Texas; W. S. Farish, Houston, Texas; Wm. V. Gross, Houston, Texas; Howard R. Hughes, Houston, Texas; Chas. H. Lane, Houston, Texas; J. H. McEvoy, Houston, Texas; Wallace E. Pratt, Houston, Texas; J. Kent Ridley, Houston, Texas; S. W. Robinson, Houston, Texas; R. S. Sterling, Houston, Texas; O. R. Waller, Chicago, Illinois.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are:

Houston National Bank, Houston, Texas.

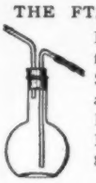
4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholders or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

A. L. BURNS,
Business Manager.

Sworn to and subscribed before me this 7th day of April, 1930.

(Seal) J. KENT RIDLEY.

(My commission expires June 1st, 1931.)

THE FT. WORTH LABORATORIES

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R. H. Fash, B. S., Vice-President
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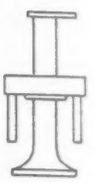

PATENTS
Patents Obtained, Trade Marks, Patent Causes
JESSE R. STONE
Formerly Assistant Examiner
United States Patent Office
Andrews, Streetman, Logue & Mobley
12th Floor Union N. Bk., Houston, Texas

HIRSCH, BROWN AND SUSMAN
Attorneys at Law
32nd Floor Gulf Building
Houston, Texas
Specializing in Oil Law and Land Law

MAJESTIC HOTEL
LAKE CHARLES, LA.
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Headquarters for Oil Co. Representatives

"Photographs of Oil Fields and Machinery Must Be Right"
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CALVIN WHEAT STUDIOS
415 Louisiana St. Preston 2526
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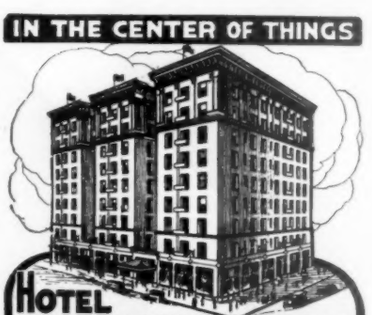
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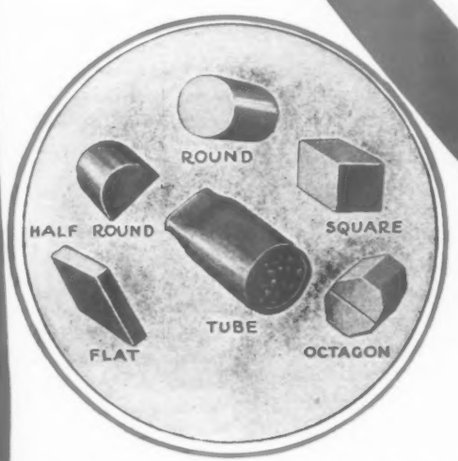
National Products are designed to keep pace with the ever increasing needs of the petroleum industry, and National Casing Protectors are the natural outcome of the need for protection from the abrasive wear of drill pipe against casing. These protectors fulfill all demands imposed upon them. They can be installed by any crew with ease, and they stay where put—wearing for indefinite lengths of time. They will not stack on the drill pipe, nor interfere with the use of fishing tools.



Write for detailed information, performance records and prices.

Another famous National Product is Anglite—a super-diamond-sub insert metal that is superior to any diamond substitute insert yet produced. Anglite is uniform in manufacture. There are six type variations to choose from: Round, Half-Round, Square, Flat, Octagonal and Tube (crushed). There is not a rotary tool hard-set demand that cannot be met by one or more of these six types. Write for complete information.

National
TOOL & METALS, INC.

Division of
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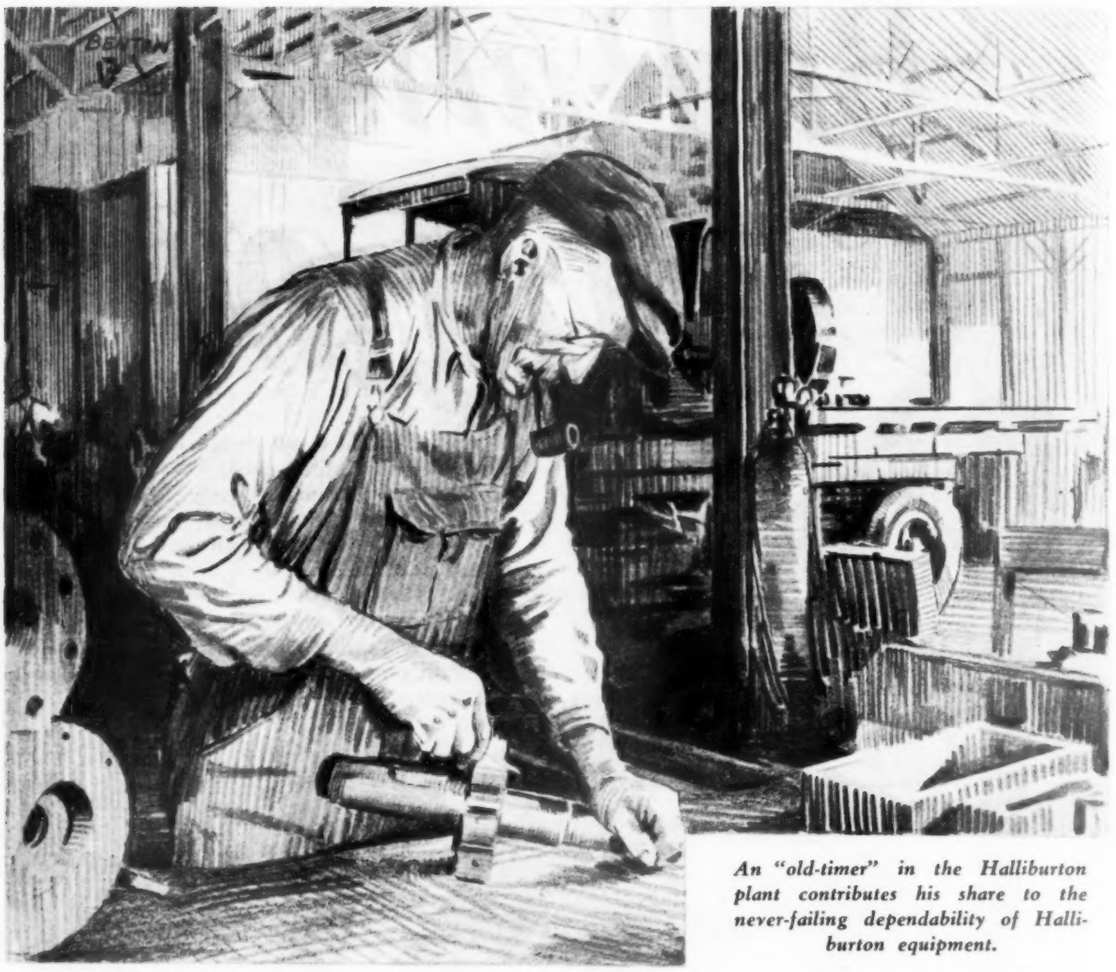

An "old-timer" in the Halliburton plant contributes his share to the never-failing dependability of Halliburton equipment.

When you see a Halliburton Cementer, you look upon a "college graduate" in cementing science. His "degree" has been won, not in cloistered halls or ivy-clad buildings, but in the noise and bustle of oil field service. His undergraduate years have been spent as assistant to seasoned "graduate" cementers in the study and solution of hundreds of cementing problems. Back of him are the traditions and resources of the greatest institution of its kind in the world. Your problem, entrusted to such a man, is in safe hands!

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New Equipment for the Field

Machinery - Tools - Catalogs - Books

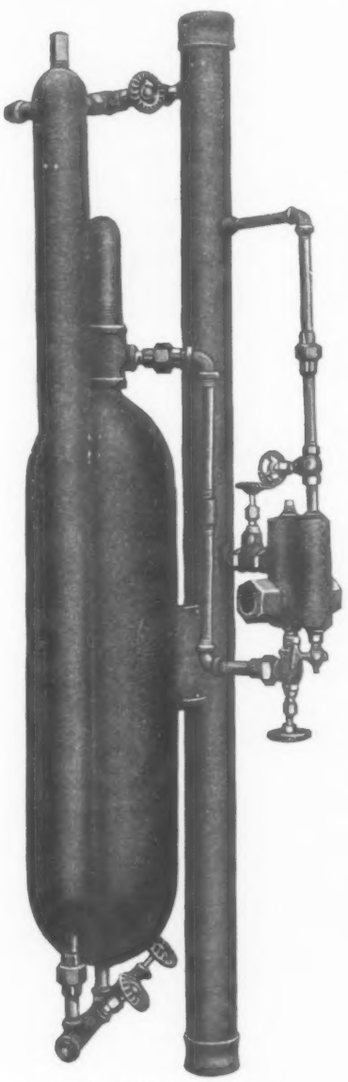
Steam Lubricator

BADGETT STEAM LUBRICATOR COMPANY

The Badgett steam lubricator, manufactured by the Badgett Steam Lubricator Company, Chicasha, Oklahoma, and distributed by National Supply Company of California, is operated by water pressure, caused by condensation in the top of the water chamber. The pressure is downward, entering the oil chamber at the bottom, raising the oil to the top and discharging it through the oil line to the sight feed and into the steam lines.

This lubricator may be attached to any steam line, either at the bottom or at both ends, it being designed to work equally well at any desirable place.

The Badgett sight feed is constructed with a double chamber which is only partly filled with water by the small steam line entering at the top of the No. 2 chamber, the remainder being made up of live steam. A small opening from chamber No. 1 to chamber No. 2 at the top and a large opening at the bottom of chamber No. 2 entering No. 1 at the bottom is to permit all condensation from the condensing line and also condensation of chamber No. 2 to enter the No. 1 chamber at the bottom. By this means the water is changed in the sight feed every few minutes.

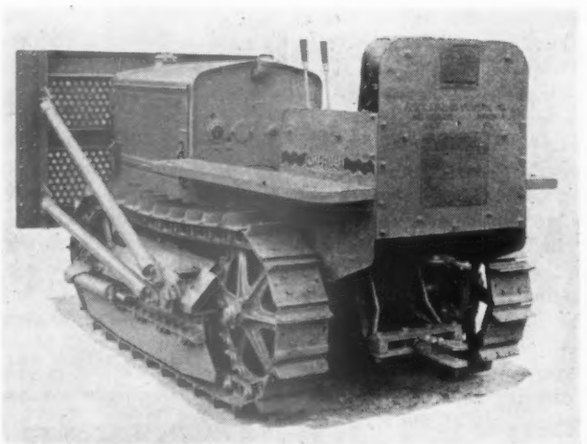


Badgett Steam Lubricator

This lubricator sight feed is self heating and self cleaning by means of condensation entering and passing through continuously. The design is such that a small water leak is prevented from effecting the sight feed.

The glasses in the Badgett sight feed are bulls eye, ¾-inch thick, for durability. These glasses are set about two inches apart so that oil passing between the two points does not come in contact with the glasses. The glasses as well as the nuts are arranged so that they may be screwed on by hand, and are designed to withstand 300 pounds pressure.

A needle point valve at the bottom of chamber No. 1 regulates the amount of oil to be fed, from a few drops to a constant stream.



Caterpillar Tractor With Push Plate

New Tractor Push Plate

CATERPILLAR TRACTOR COMPANY

The Caterpillar Tractor Company, San Leandro, California, has recently made available for the Model 10 tractor a push plate or front bumper, illustration of which is shown here.

This push plate is designed to increase the adaptability of this small model caterpillar by enabling the tractor to push cars without attaching to them with chains or bars.

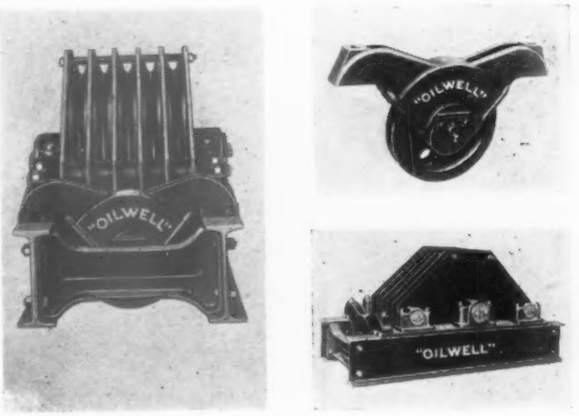
The front plate is 59¼ inches wide by 34⅝ inches deep and the bottom edge of the push plate is approximately 16 inches from the floor when the tractor is equipped with standard tracts. The five members of the assembly come within the outer edge of the push plate unit. This push plate is being marketed through the dealers of the Caterpillar Tractor Company, the home office of which will furnish more complete details upon request.

New Crown Block Accessory

OIL WELL SUPPLY COMPANY

Oil Well Supply Company is marketing a cat line sheave attachment for use with the "Oilwell" center pin type crown block.

A cast steel carrier for the cat line sheave saddles the



Oil Well Crown Block

NEW EQUIPMENT FOR THE FIELD

I-beams and is bolted to patented "Oilwell" T-slotted slides. The attachment can be quickly mounted on or removed from the crown block. The sheave is 17½-inch O. D., bronze bushed and Alemite lubricated.

The large load capacity and convenient application are marked features of this new device.

The "Oilwell" five-sheave center type crown block is recommended for high speeds and heavy loads. Patented "Oilwell" T-slotted slides are welded to 15-inch 65-pound I-beams. The heads of the end bearing bolts fit in the T-shaped slots. The slide feature provides for easy adjustment of the center pin assembly lengthwise on the beams. The end bearings are of box and cap type, which design permits the center pin assembly to be easily mounted on the beams at the top of the derrick.

High manganese steel sheaves of 36-inch diameter and with rope grooves ground to A.P.I. specifications, offer a good bending radius and a smooth surface to conserve the wire line. The sheaves rotate on heavy duty American roller bearings and each bearing is individually lubricated through grease passages from the ends of the center pin. The center pin has a carrying capacity greater than the combined safe working load capacity of the wire line.

Guard or housing can be furnished for the center pin assembly. The "Oilwell" center pin type crown block is available with six instead of five sheaves.

The "Oilwell" five-sheave center pin type crown block is adaptable as the upper deck for "Oilwell" double deck crown blocks.

Folder No. 424, describing the center pin type crown block and cat line sheave attachment, will be furnished on request at any "Oilwell" branch store.

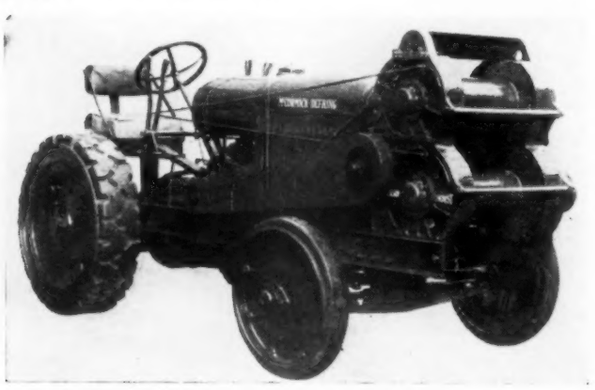
New Trackson Hoist

TRACKSON COMPANY

Portability is one of the biggest advantages of the new Trackson hoist which was put on the market recently by the Trackson Company, Milwaukee, Wisconsin. This machine is built for mounting on the McCormick-Deering tractor, providing a flexible unit which can be driven from one job to another under its own power.

Among the uses for this equipment are: moving derricks and boilers; pulling rods, tubing and casing; erecting tanks; skidding heavy machinery and loaded trailers; and pulling big trucks up steep inclines and through mud holes and soft ground.

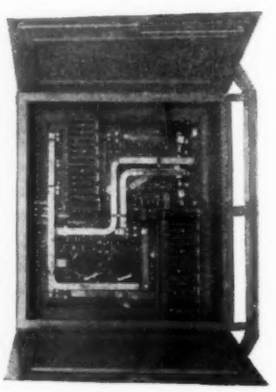
The hoist is mounted on the power unit by means of six-inch steel channels which extend from the front of the hoist and are attached to the tractor rear housing. The hoist may be mounted on either the wheel tractor or the Trackson Crawler-equipped McCormick-Deering.



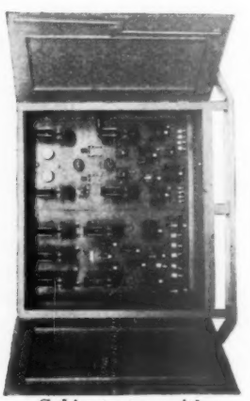
New Trackson Hoist

Some of the new features embodied in the Trackson hoist are improved screw type clutches, oversized drum shafts and increased cable capacity, hand lever control and ready adaptability from the single to a double drum type hoist. The auxiliary drum may be attached as the user needs it, without any alteration to the main drum unit. It is mounted directly over the main drum, making a complete, compact two-drum machine.

The Trackson hoist is built both in the portable model for tractor installation and as a stationary hoist. The latter has a material elevator spool which is adapted to endless cable work such as operating material elevator cages in construction jobs. The line speed is 290 feet per minute in both high and reverse gears, and 136 in low. The elevator spool is readily interchangeable with the gypsy spool and can be installed quickly. The stationary hoist has a dog type clutch, transferring the power from the main drum shaft to the elevator spool. The latter can be operated independently of the main drum. The brake is of extra-large capacity, insuring long wear to the brake lining and ample ability to hold the load. It is operated by a left-hand lever and locking ratchet.



Showing rear exposure



Cabinet open with front exposed

Electric Drilling Apparatus

WESTINGHOUSE ELECTRIC & MANUFACTURING COMPANY

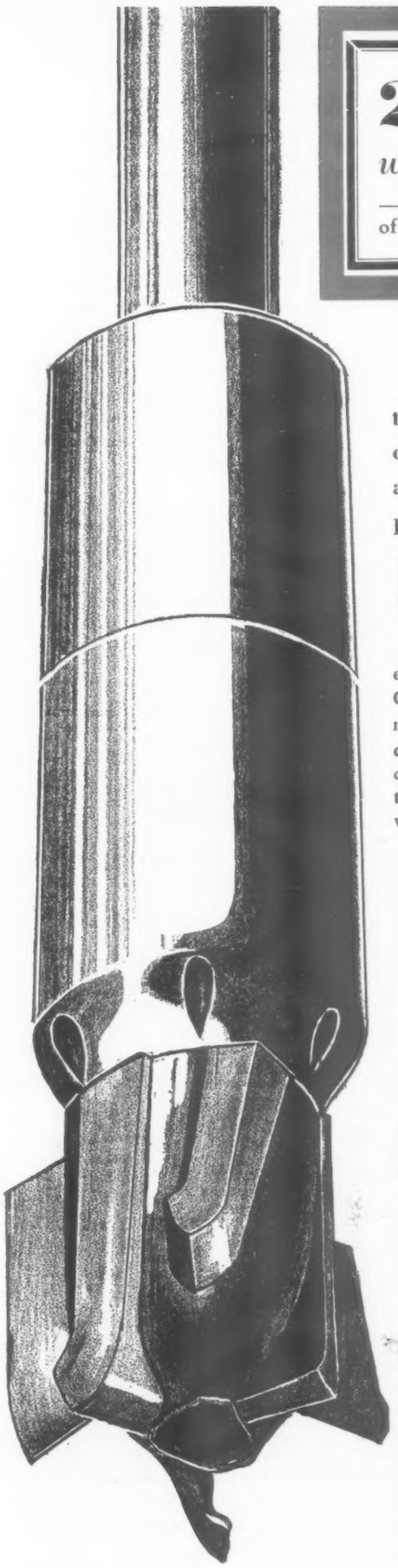
Westinghouse Electric & Manufacturing Company, East Pittsburgh, has recently developed a new direct current variable voltage drilling apparatus for flexibility of control, increased drilling speed and adaptability, both electrically and mechanically.

This equipment comprises two 125 KW. 125 volt D.C. generators with direct connected exciters supplying power to a separately excited 125/250 horsepower D.C. drilling motor and a separately excited 125 horsepower mud-pump motor, and a complete control.

During drilling operations one generator supplies power to the mud pumps and the other generator supplies power to the drilling motor. In hoisting, the two generators are placed in series to give combined power of the generators and double speed on the drilling motor for fast hoisting operations.

The entire control for generators, drilling motor and mud pumps is self-contained and enclosed in a sheet steel cabinet which is mounted on skids to facilitate handling in the field. The control is arranged so that either generator can be used for either the mud pump or the drilling motor.

Operation of the control can be obtained by means of the telegraph cord connecting the master switch with the control wheel on the draw-works post. Suitable push-buttons for magnetic operations are also placed on the draw-works post.



20-foot Cores

with the PERFECTION *Core Barrel*

—in use by more than 80% of the major oil companies . .

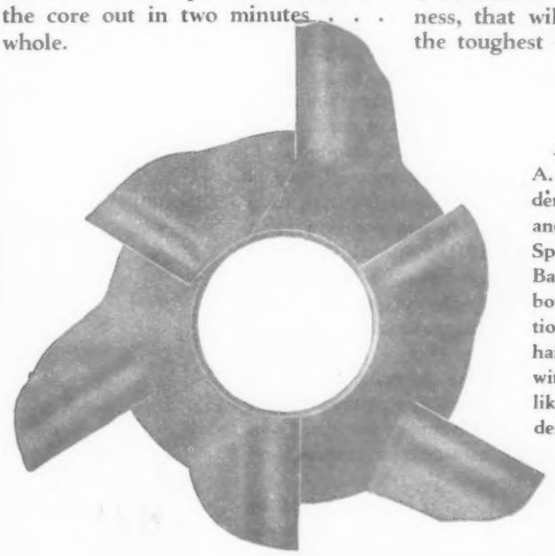
BY using the additional sections for long coring, you can take a clean, accurate core with the PERFECTION Core Barrel up to 20 feet . . . and the core will come out whole and unbroken giving you a perfect picture of the formation.

Split Liner

The Split Liner, an exclusive patented feature of the PERFECTION Core Barrel, makes it possible to remove the core in two minutes. Any driller, or the greenest roustabout, can remove the split liner and take the core out in two minutes . . . . whole.

Clean Core

A clean core is always assured. Circulating water keeps the barrel clean until it reaches bottom, then a ball dropped through the drill stem cuts off the water from the barrel. Cutter heads are faced with a substance of diamond-like hardness, that will take a core through the toughest formation.



Ask about other Brewster A. P. I. Products: Shouldered Tool Joints; Fish Tail and Special Gumbo Bits; Special Rock Bits; Core Barrel Cutter Heads for both hard and soft formations. (Cutter Heads for hard formations are faced with a substance of diamond-like hardness.) Write for descriptive catalog.

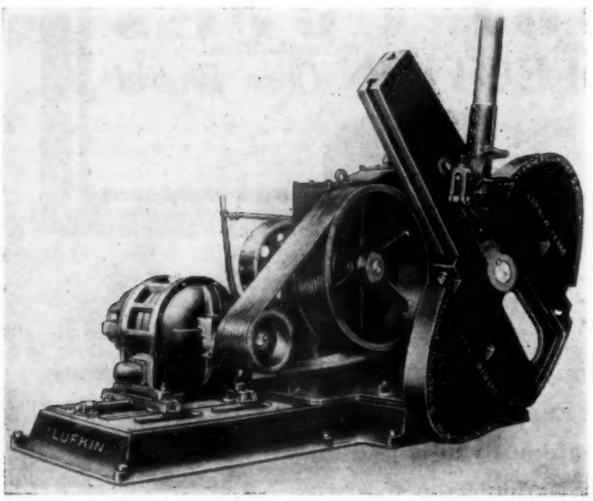
The Brewster COMPANY~INC.

SUCCESSORS TO OIL CITY IRON WORKS, INC

Shreveport, Louisiana

COMPLETE STOCK carried at these warehouses: Red Ball, Inc., 2-4 East California St., Oklahoma City, phone W-3680; Iverson Specialty Co., Oklahoma City, Houston Store, 2000 Harrington St., Phone Capitol 3021. *Distributors:* Wilson Supply Co., Houston, Beaumont and Luling, Texas; Continental Supply Co., all stores; Murray-Brooks Hardware Co., Lake Charles, Louisiana; T. T. Word Supply Co., Houston, Texas, and Lake Charles, Louisiana; The Ellis Iron Works, Inc., El Dorado, Arkansas. *Exclusive Export Agents:* The W-K-M Co., 74 Trinity Place New York, N.Y.

NEW EQUIPMENT FOR THE FIELD



New Lufkin Unit

New Pumping Unit

LUFKIN FOUNDRY & MACHINE COMPANY

Lufkin Foundry & Machine Company, Lufkin, Texas, announces the development of a new unit which employes the new Sykes-Herringbone type of gearing. Only two sizes are now being produced, the standard 5½-inch and the heavy duty 6½-inch, of which there are more than 100 new units now in use.

Due to the continuity of tooth contact peculiar to the Sykes-Herringbone type of gearing, the new Lufkin unit offers strength and silence of operation. This type of gearing is also designed to provide the maximum contact for a given width of space, and back lashing is prevented due to the elimination of thrust. Hyatt anti-friction roller bearings are used in the pinion shaft, with anti-friction bearings used throughout. A special heat treatment has been developed for material used in this unit and new equipment has been installed in the Lufkin plant for its manufacture, including equipment for generating the teeth on the gear and pinion and the special lapping-in machine for matching and insuring precision of these units. Design of the new Lufkin unit permits the adaptation of any type of prime mover. Trout counter-balance crank is also used on the new Herringbone unit.

Lufkin Foundry & Machine Company is the manufacturer of the Lufkin worm geared units, of which approximately 1300 are now in use. Other products of this company are the Trout self-aligning pitman, self-supporting samson post, beams, and rod and tubing hoists of various sizes.

The March-April issue of the Lufkin Line, published by Lufkin Foundary & Machine Company, contains full information on the new unit and will be mailed to those interested, upon request.

Naylor Pipe Company, Chicago, has appointed Joseph V. McMullan foreign sales manager with headquarters at 3116 Chrysler building, New York City. McMullan's experience in iron and steel fabricating, hydraulic or pipe line dredging and in design and construction and operation of hydraulic dredges dates back many years. Since 1926 he has served Naylor Pipe Company in the New York district, and prior to that time was connected with the T. S. Marvel Shipbuilding Company, James Stewart & Company, Morris Machine Works and the Gahagan Engineering Company.

New Field Specialties

ELECTRIC WELDING ENGINEERING COMPANY

Electric Welding Engineering Company, organized January 1, 1930, by J. A. Parker, with offices and shops at 403 67th Street, Houston, to manufacture and distribute a line of oil field equipment, is now running steady production on four items.

An improved boiler feed water heater for oil field boilers, which delivers water to the boiler at a maximum temperature of 180 degrees, is being specialized on by this company. Welded boiler headers fabricated with the electric weld and tested at 500 pounds cold water pressure and built of four-inch heavy steel pipe is another product of Electric Welding Engineering Company. A mud box, fabricated with the electric weld in two sizes to fit four and six-inch drill stems, is a third product, and rear casing dollies, also fabricated with the electric weld, is also being turned out by the company.

The H and T Safety Slide

BULLARD-DAVIS, INCORPORATED

The H. and T. safety slide has been developed to meet the demand from oil producers for a derrick slide which will enable a derrick man to quickly and safely escape from the derrick in case of emergency.

The slide has been developed by two engineers from one of the leading oil companies after several years of experimenting. The H. and T. safety slide is portable, weighing only 12 pounds. When the derrick man goes on the tower, he carries the slide slung on his shoulder, so that it will not interfere in any way with his hands. When he reaches the fourble board, he clamps the slide to a guy wire by placing it through a slot provided in the slide for that purpose.

The slide is clamped in place by closing the hand brake. In case of emergency the man on the derrick places one leg through the leg sling and releases the slide by a slight pressure

H. & H. Safety Slide. The men here are R. B. Hecox, one of the inventors, and B. F. McDonald, sales manager of Bullard-Davis, Inc.

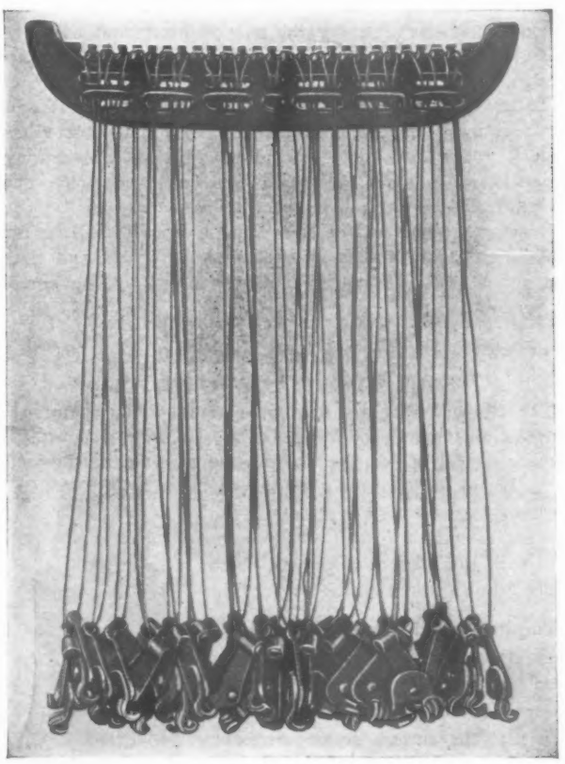
NEW EQUIPMENT FOR THE FIELD

of his hand. The slide immediately runs down either a tight or slack guy wire.

The speed of descent is regulated by the brake shoe on the slide. The brake is used to slow up or stop on the guy wire without jerking.

The H. and T. safety slide is distributed from all offices of Bullard-Davis, Inc., manufacturers and distributors of safety equipment for industry and mines.

Automatic Lag Clutch Manufacturing Company, 822 East Sixtieth Street, Los Angeles, has recently mailed literature on a 15-horsepower geared motor for starting loads up to 50 horsepower without the use of starting compensators or resistances. The free rotor geared motor for band wheel pumping has the automatic lag clutch built into the motor itself. Complete details on this unit may be had by writing the company for descriptive literature.



Sucker Rod Hanger

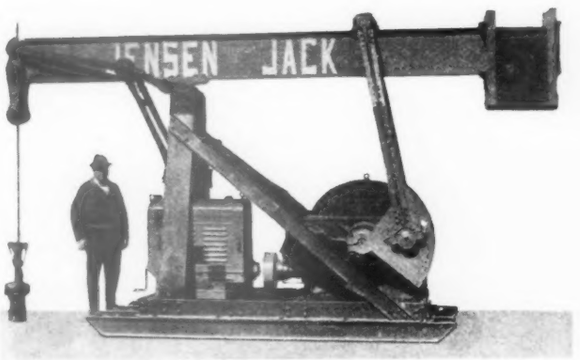
Improved Sucker Rod Hanger

SPECIALTY OIL TOOL COMPANY

Specialty Oil Tool Company of Los Angeles, manufacturers of Sotco oil well fishing tools and other specialties, announces an improvement recently made in the Sotco wigle sucker rod hanger, a device to hold the rods safely out of the way in a compact group.

The improvement now incorporated in this hanger is to make it possible for any part of the sucker rod to be engaged instead of depending on the rod coupling for engagement, with the result that the rods may be evenly placed in the derrick without undue waste of time and labor.

The Sotco wigle improved sucker rod hanger, as shown in the accompanying illustration, will accommodate up to 60 stands of ¾-inch rods. It is constructed of cast steel.



New Jensen Jack

New Pumping Jack

JENSEN BROTHERS MANUFACTURING COMPANY

Jensen Brothers Manufacturing Company, Coffeyville, Kansas, is marketing its new pumping jack equipped with a gas engine, following four years of development and tests. This unit employs the Titan straight lift, a principle perfected by this company.

A feature of this unit is the reduction in the number of working parts. It is equipped with a combination counter balance, a combination crank and beam with a two to one leverage on the beam. The cranks, one on each side, are counter weighted, and the gear reduction carries a fly wheel connected directly to the gas engine. This arrangement is to give a more constant power consumption and to allow the gas engine to come to full speed at both the top and bottom of the stroke and slow down to full speed at both the up and down stroke. The unit employs no chains nor belts.

The gears consist of a worm drive to a set of spur gears which drive the crank. The worm gear brings the speed of the gas engine down to approximately 180 revolutions per minute.

The gear bearings are Hyatt and Timken. The bearings are bored in solid metal and the cases pressed into position. Other bearings are of standard oil field pump jack specifications.

The gear reduction in these units runs in an inclosed bath of oil with provision made for convenient and efficient lubrication of outside bearings.

While this unit is not as portable as the Jensen electric jacks, it may be moved in a few hours.

The manufacturers will give more complete details upon application.

New Bearing Catalog

AMERICAN ROLLER BEARING CO.

American Roller Bearing Company, Pittsburgh, has issued a 76-page loose-leaf catalog, which completely covers in description, illustrations and prices the company's line of roller bearings. This catalog, made up in permanent form, is being mailed to companies or interested individuals upon request.

Twelve pages in the catalog are devoted to picturing leading lines of oil field equipment employing the use of American roller bearings; 14 pages are devoted to picturing industrial equipment, including machine tools, using these bearings; and like sections are used for line drawings of typical oil field and industrial installations, machinery and equipment.

American roller bearings, as described in this catalog, are supplied in three distinct classifications, making it necessary to refer to the load capacity and dimension tables in the

Like a doctor . . . he buries his mistakes

The man who uses inaccurate thread gages in checking couplings and other underground work, may bury his mistakes. There'll be a day of judgment, however, when ill-fitted equipment has to be fished up at terrific cost and great waste.

There is no excuse for poor threads in the oil country since the A.P.I. performed the admirable service of standardizing the necessary thread gages.

It was a tribute to Pratt & Whitney that we were asked to make the Master Thread Gages for the A.P.I. But the greatest tribute is the fact that we are now making so many of the working gages.

We would be glad to send you a copy of our free book, Oil Country Gages, which contains invaluable gaging information as well as a description of Pratt & Whitney A.P.I. Gages.

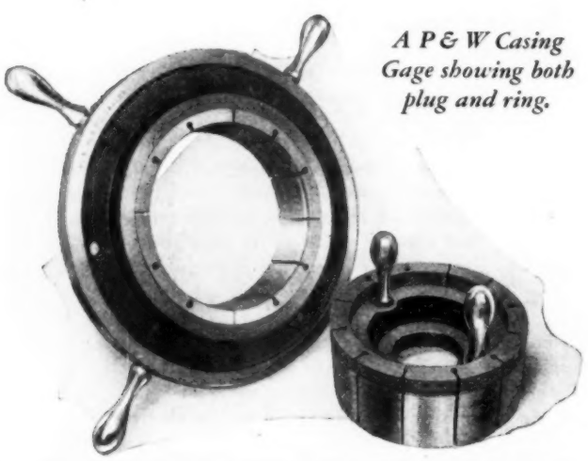
PRATT & WHITNEY

Hartford, Connecticut

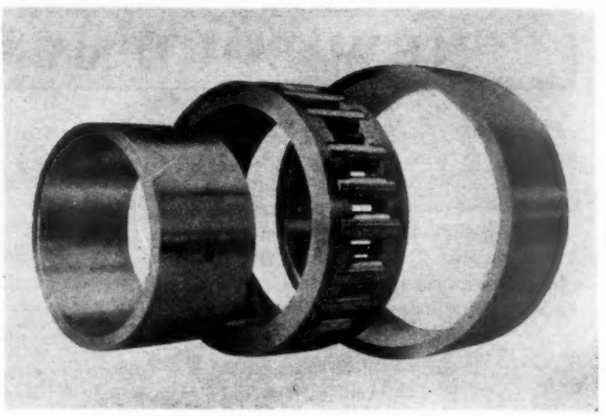
Division NILES-BEMENT-POND COMPANY

Pratt & Whitney Oil Country Gages include:

Plain and Upset Oil Well Tubing Gages
Interior Upset Drill Pipe Gages
Cable Drilling Tool Joint Gages
Plain and Upset Casing Gages
Rotary Taper Joint Gages, Line Pipe Gages
Sucker Rod Gages, Fishtail Bit Gages



A P & W Casing Gage showing both plug and ring.



American Roller Bearings

catalog to select the proper type for the service involved. Medium duty, heavy duty and super heavy duty roller bearings are furnished with, or without, inner and outer races just as conditions of service and design indicate. The engineering department of the company is prepared to submit definite recommendations covering the use of inner and outer races, upon receipt of full specifications covering the conditions of design, load and speed.

The new catalog gives a complete line-up on steel used in the manufacture of its bearings. Descriptions are given to rollers, cages and races, including detailed explanations of heat treating methods, weights and design. A complete outline on lubrication is carried in the catalog.

Seventeen pages in the new catalog are devoted to tables, including bearing tolerances, modification factors, and sizes of the three types of bearings manufactured by the company, by series.

Rotary Disc Bit

GUIBERSON CORPORATION

The Guiberson four-disc reaming rotary bit, manufactured by the Guiberson Corporation, Dallas, Texas, incorporates four cutters instead of two for the purpose of reducing the amount of work on each cutter. Addition of the two extra cutters is to allow the two inside cutters to drill out the core and, with the other two cutters, more finely grind up the cuttings.

The inside and outside cutters have offset axes to keep the spaces between them clear by the revolutions of the cutters. The construction of the bit is such that the cutters do not fit tight on the axes in order to allow a small play between the cutter and axle, and thereby the action of cutting throws the forward and downward cutting edge outwardly to cut more hole.

The side plates have reamers fitted into them to keep the hole full size as the cutters wear down.

Water flush hose are carried directly to the bottom of the bit so as to discharge water at the cutting point and keep the cutters and the hole clean.

Literature covering complete details of this disc bit are available by writing the Güiberson Corporation, Box 1106, Dallas, Texas.

Guiberson Disc

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THE 1930 EDITION *of the*

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Names are being furnished us by the executives of the Various Oil Producing and Pipe Line Companies, of their Officials in charge of production and transportation, field managers, department managers, superintendents, engineers, purchasing agents, foremen, tool pushers, contractors, etc.

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Manufacturers and Supply Dealers Notes

Midwest Piping & Supply Company, Inc., with national headquarters in St. Louis, has awarded the Austin Company (of Texas) the contract for design and construction of a $250,000 pipe fabricating plant at Houston.

The completion of the branch plant at Houston will increase the productive capacity of the Midwest Company by 25 per cent. The Houston branch will be its fourth plant, and will employ over 100 men.

Orders from steam plants and the oil industry necessitate the expansion, according to A. Guy Stoughton, president of the organization and also president of the National Power Piping Society.

The plant will be of one story, steel frame and brick construction, 220 by 200 feet, and will require 180 tons of structural steel.

The contract calls for installation by the Austin organization of two 3-ton cranes, two 5-ton cranes and one cross runway extending outside of the building.

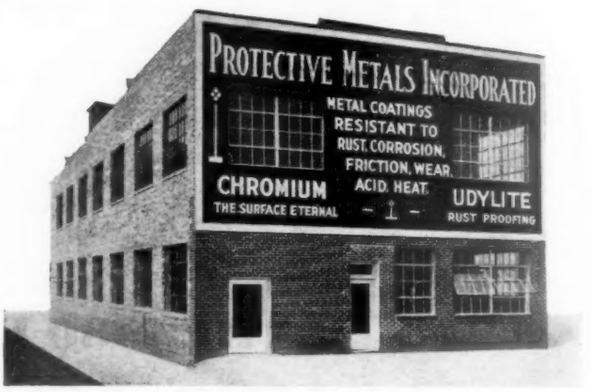
In addition to the main plant at St. Louis, the company operates plants at Los Angeles and at Passaic, New Jersey. Houston was selected as the location of the fourth plant because of its advantageous situation in reference to the southwest section of the country, the announcement states.

Atlas-Imperial Diesel Engine Company, with offices and factory at Oakland, California, have announced that Paul Arbon & Company of Tulsa are appointed distributors and sales agents for the company's full Diesel engines for the Mid-Continent field. K. S. Richards, factory engineer in charge of the company's oil industry sales in Tulsa, is working in association with Paul Arbon & Company.

The Atlas-Imperial full Diesel engine has been in use in the oil industry on the West Coast for more than a year and a complete stock of engines from 20 to 500 horsepower will be carried by Paul Arbon & Company to supply the industry in that section.

The Atlas-Imperial full Diesel is applicable to electric drilling, for rotary and cable drilling and also for air compressors and light plants and other uses in the field. Also is applicable for water pumping and pipe line pumping. The engines are portable and may be transported in the field from one location to another in drilling operations.

Paul Arbon & Company have on display several models of the Atlas-Imperial full Diesel at the Tulsa factory.



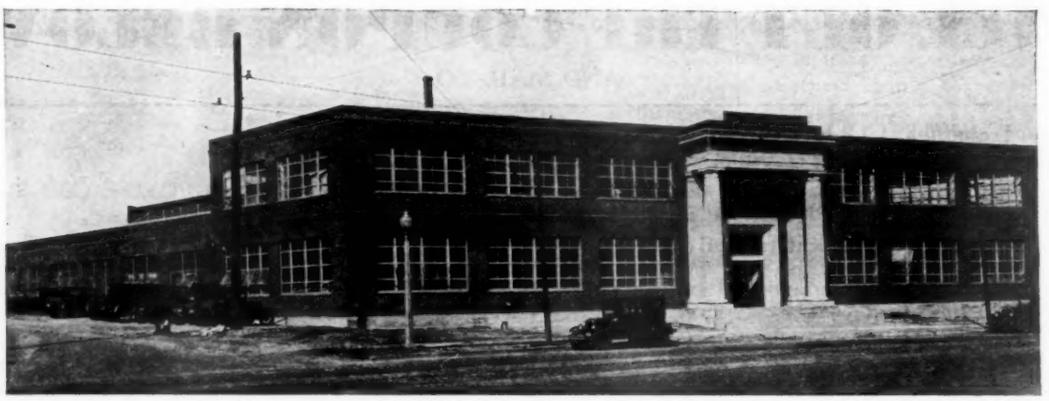
H. C. Pierce has been made general manager of Protective Metals, Inc., in Tulsa. Mr. Pierce formerly was associated with the Udylite Company, Detroit, and has been intimately connected with the development of the Udylite process of rustproofing. He also has been closely associated with the development of chromium plating.

Protective Metals, Inc., maintain one of the largest plants in the United States for handling various types of electro plating. The company specializes on oil field equipment and has developed an extensive business in the Mid-Continent field.

The company was organized and is backed by oil men and industrial leaders in Tulsa. H. O. Bird, treasurer of the C. F. Camp Company, is president, and Charles G. Rebman, assistant mechanical superintendent of Mid-Continent Petroleum Corporation, is treasurer, and directors also include W. H. Helmerich, J. K. Finlayson and Earl Sneed.

Byron Jackson Company was awarded a cup by the judges at the recent oil equipment and engineering exposition at Los Angeles for the most effective presentation of drilling equipment. The center of this display was a moving model of the new BJ rock bit.

Eagle-Picher Lead Company announces the opening of a new office and warehouse in Dallas, located at Jefferson and Caruth Streets, to better meet the needs of the Southwestern market.



The above photograph shows the recently completed office building of Broderick & Bascom Rope Company, manufacturers of yellow strand wire rope at 4203 North Union Boulevard, St. Louis, Missouri. The executive offices and the general office occupy the entire second floor. On the ground floor the right half is given over to the Tramway Department. The balance of the main floor, including a one-story extension, is devoted to the storage of finished rope. The warehouse is laid out to reduce the handling and hauling of heavy reels to a minimum.

L. C. WITTEN

W-K-M Company, Inc., Houston, manufacturers of oil field, pipe line, and industrial equipment, announce the appointment of L. C. Witten as a member of the firm. Mr. Witten, for four years auditor of W-K-M, will become assistant treasurer.

W. A. DRAKE

Walter A. Drake, for the past 22 years with Oil Well Supply Company, has resigned to join the Lucey Products Corporation. In his former connection Mr. Drake had at various times been located in practically every oil field of Kansas and Oklahoma. His home is in Oklahoma City, where he will continue to live in his present business connection.

United States Chain & Forging Company, Pittsburgh, has recently announced the following promotions, effective April 1: L. A. Gerber, former western district sales manager, was made general sales manager. W. L. Reilly, for many years a member of the headquarters staff, was named assistant general sales manager. L. K. Robinson, former head of New England sales activities, was made eastern district manager with headquarters in New York. Harley Morris, former salesman in the western division, became western district manager with headquarters in Chicago.

Officers of the Hercules Powder Company, Wilmington, Delaware, were elected March 26 for the ensuing year, as follows: R. H. Dunham, president; J. T. Skelly, T. W. Bacchus, N. P. Rood, C. D. Prickett, G. G. Rheuby and C. A. Higgins, vice-presidents; C. C. Hoopes, treasurer, and E. B. Morrow, secretary.

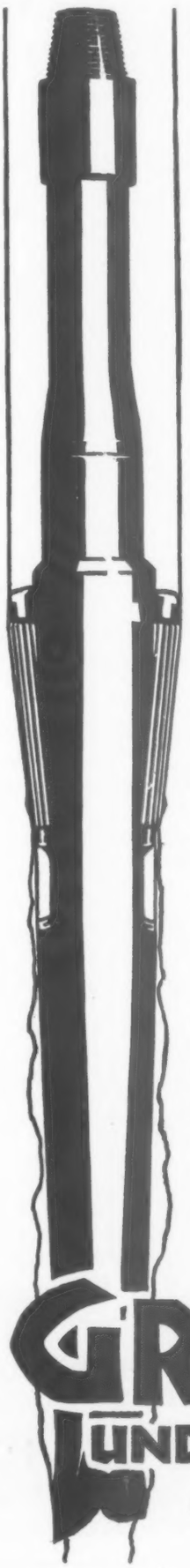
Chicago Pneumatic Tool Company, 6 East Forty-fourth Street, New York City, announces the opening of new branch offices as follows: Perrine Building, Oklahoma City; 327 Philcade Building, Tulsa; and the Merchants & Manufacturers Building, Houston.

Service stations and warehouses have been established at both Oklahoma City and Houston, where air and gas compressors, engines, pneumatic and electric tools, rock drills and other articles of the company's line will be carried, with parts for servicing.

Arco Company, Cleveland, has selected Los Angeles as the location for its new paint plant to serve the Western, Latin American and the Oriental trade, according to an announcement made by S. D. Wise, president and S. D. Weil, vice-president, following a survey of Western and export business conditions.

The plant will consist of three brick buildings totaling 16,500 feet of floor space. This will include a paint manufacturing plant 100 by 100 feet, a lacquer plant 50 by 100 feet and a varnish plant 30 by 60 feet.

The new factory will be known as the Arco Company, Ltd., of California, and will be under the direction of Howard Wise. Howard Raeney will be general sales manager and E. B. Hagar, who has been manager of the San Francisco branch, will be district manager with headquarters in Los Angeles.



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Think what this means to you! Underreaming may be the deciding factor in your production—it may mean the difference between being a large producer or a small producer.

In wells or in territory where there is no large gas pressure, the circulation mud becomes impregnated in the wall of the hole and thus presents an obstruction to the entrance of oil. By UNDERREAMING through the oil sands—the operator is certain of getting *all the oil there is.*

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"Used where performance counts"

SQUEAKS FROM THE BULL WHEEL

"Psst!" hissed the inmate of the asylum. "I've made a great discovery."

"Ah, I knew you were a wonderful man," the keeper humored him.

"Sssh! I've found they take the holes from doughnuts and use them to fill macaroni."

"I was outspoken in my sentiments at the last office I worked in," confided the stenographer to the bookkeeper.

With a look of astonishment, he replied:

"I can't believe it! Who outspoke you?"

"What's a cowslip?"

"Just a bovine indiscretion, Babe; just a bovine indiscretion."

"I am satisfied on one thing at last; I found where my husband spends his evenings," remarked Mrs. Gadabout.

"You don't say so, dear; how did you find out?" questioned the excited Mrs. Gossip.

"I stayed at home one evening last week, and found him there," answered the satisfied lady.

Cop: "Who was driving when you hit the car?"

Drunk (triumphantly); "None of us; we were all in the back seat."

"Izzy, mine boy, vy you shut off the radio?"

"Dey was broadcasting de services from de synagogue, papa."

"Vot's the matter vith dat? It's good you should listen to such things."

"Yes, papa, I know, but dey vas taking de collection."

Plumber: "I've come to fix that old tub in the kitchen."

Youngster: "Mama, here's the doctor to see the cook."

Book Agent (to farmer): "You ought to buy an encyclopedia, now that your boy is going to school."

Farmer: "Not on your life. Let him walk, the same as I did."

"Oh, gosh!" the girl exclaimed. "It's started to rain. You'll have to take me home."

"Why, I'd—I'd love to," her bashful escort stammered, "but you know I live at the 'Y.'"

"I heard the absent-minded Professor Jones driving his car into the garage at daybreak this morning. Where do you suppose he had been all night?"

"Well, Mrs. Jones told my wife that he saw a red lantern beside that excavation down the street and had sat there waiting for it to change to green."

Two Irishmen, one accompanied by his wife, met on the street.

Said Pat to Mike: "Let me present my wife to ye."

"No, thank ye," replied Mike, "got one of me own."

Suspicious Wife: "Where have you been all evening?"

Husband: "I've been talking business with Tom Baker."

"Yes! And I suppose that is baking powder sprinkled all over your shoulder?"

"Look and see how much gas we've got, will you?"

"It points to ½, but I don't know whether it means half full or half empty."

"Will you call me a taxi, please?"

"All right. You're a taxi."

The Gentleman from Chicago visits Boston: "Stranger, can you tell me where is a good place to stop at?"

Citizen of Boston: "Just before the 'at.'"

"So you've bought a used car, eh. What's the most you ever got out of it?"

"About five times in one mile."

"Check your oil, ma'am?"

"No, thanks, I'll take it with me."

Isaac: "You should pull the curtains down ven you kiss your wife. I saw you last night."

Abie: "The choke's on you. I wasn't home last night."

A young man was lying on an operating table ready for an examination.

Doctor (to attendant): "Bring in ethyl chloride."

Young man (jumping up): "No, Doctor, please don't bring a woman in here."

I crept upstairs, my shoes in hand,
Just as the night took wing—
And saw my wife four steps above,
Doing the same darn thing.

"Our garage man's got a better radio set than our's, mama."

"What makes you think that, dear?"

"He said he knew he'd get hell when he went home tonight."

"Officer, this woman declares that you first tried to coax her to marry you and then you arrested her."

"Oi did, sor."

"And what was the charge?"

"Resistin' an officer."

Old Kon Says–
The safest way for any crew to tank up is on Kontol. It works while you sleep and makes you forget your troubles...
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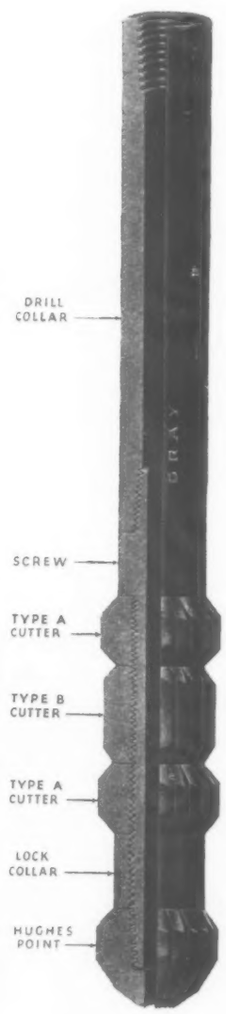
IN THE
PERFORMANCE OF A WORRISOME JOB



THE GRAY MILLING TOOL

Have you ever had a whipstock turn while milling?

Have you ever had it fall over into the hole after side tracking was completed?

Have you ever cut off your drill pipe where it comes in contact with the casing in entering the new hole?

Have you had collars above prevent your getting out?

Have you cramped your milling tool into a strain through jumping out too quickly resulting in a twist off?

Do you always, upon completion, have a side tracking job that will permit setting casing without hanging up?

• • • *By Using These Two Tools*

A milling job will still be more or less worrisome but you can at least avoid a repetition of the above difficulties through using the two tools illustrated. Both are necessary for the utmost efficiency for they are made to work together.

We will appreciate your request for further information. Also our complete *Drilling and Fishing Tool File* is available. Do you have your copy?

THE GRAY WHIP STOCK

GRAY
TOOL COMPANY
HOUSTON – TEXAS

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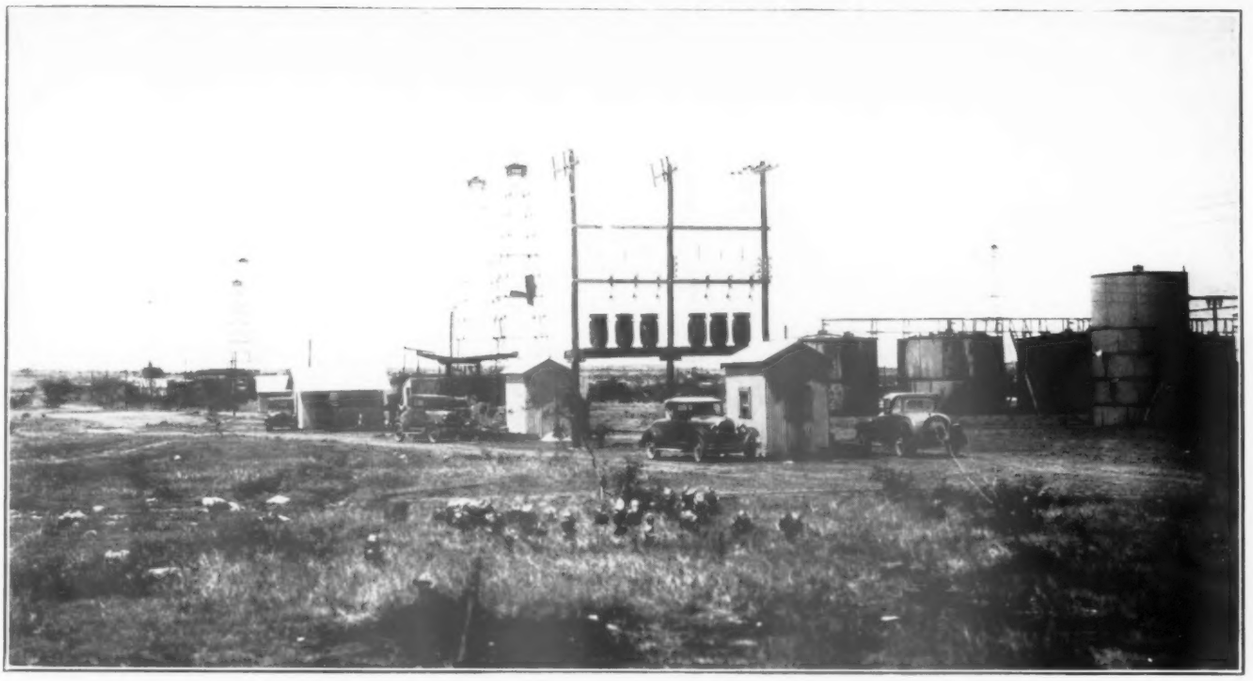

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[Wilson]

Cutters collapse completely when running in, and cannot snag on casing.

Rugged cutters braced close to their cutting edge withstand every strain.

Regular and API sizes... 3½" to 20" inclusive.

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